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February 23, 1999
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The Port of Long Beach
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P.O. Box 570
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SFUND RECORDS CTR

88184528

**SUBJECT: SITE INVESTIGATION RESULTS
WAREHOUSE A, BUILDING P-11, AND BUILDING 50
FORMER LONG BEACH NAVAL SHIPYARD
(Reference Contract No. HD-5858, Job Task 9922)**

Dear Dr. Knatz:

URS Greiner Woodward Clyde (URSGWC) is pleased to present the results of the site investigation conducted at Building 50, Building P-11, and Warehouse A located at the former Long Beach Naval Shipyard. The location of the site and site plan are provided in Figures 1 and 2, respectively. The scope of work was conducted pursuant to your verbal request on December 29, 1998. This letter report summarize the objectives, background, scope of work, field activities, analytical results and recommendations.

OBJECTIVE

The objective of this investigation is to evaluate shallow soil and groundwater conditions adjacent to the sumps identified at Building P-11 and Warehouse A prior to site demolition activities. In addition, samples of the wood block floor inside Building 50 were to be analyzed for waste disposal classification purposes.

BACKGROUND

A background discussion of Building 50, Building P-11, and Warehouse A is provided below.

Building 50

Building 50 was used for general storage, packing, and shipping operations. Wood block floors exist at three locations. As part of the packing and preservation operations, two aboveground process tanks were used in Building 50; one of which was a de-rusting tank that held approximately 270 gallons of Tec 360-acid (cleaner with solvents), phosphoric acid, wetting agents, and chromate inhibitor (Brown and Caldwell, 1969). This solution was discharged to a

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The second tank was a Tri-Co tank that held approximately 50 gallons of trichloroethylene that was hauled away by LBNSY for disposal every 6 months (Brown and Caldwell, 1969).

During the October 21, 1998 site walk, floor staining was observed. Therefore, regulatory agencies recommended one sample be taken from the stained area of the wood floor for waste classification purposes.

Building P-11

During the site visit, a 1-foot by 1-foot open drain in the asphalt pavement was observed outside the southeast corner of the building. Its function and discharge location are unknown. Regulatory agencies recommended one sampling location adjacent to the drain.

Warehouse A

Warehouse A was typically used for storing refurbished and new diesel engines for the past 15 to 20 years. A 3-foot by 10-foot by 2-foot deep below-ground sump in the floor was observed inside the eastern portion of Warehouse A. Its use or discharge location is unknown. Regulatory agencies recommended one sampling location adjacent to the drain within the sump. The Regional Water Quality Control Board (RWQCB) guidance provided during the BCT meeting on December 14th indicated that the sample should be collected beneath the sump.

SCOPE OF WORK

The following scope of work was conducted to accomplish the project objectives outlined above:

- ***Building 50:*** One wood block sample was collected from an area stained with oil. Additionally, for comparison purposes, one wood block sample was collected from an area without staining. These samples were collected from the northern portion of Building 50 (Figure 3).
- ***Building P-11:*** One soil and one groundwater sample was collected adjacent to the drain located outside the southeast corner of Building P-11 (Figure 4). Additionally, samples of the drain contents (fluid and sludge) were collected for waste disposal purposes.
- ***Warehouse A:*** One soil and one groundwater sample was collected adjacent to the sump located in the eastern portion of the warehouse (Figure 5).

FIELD ACTIVITIES

This section summarizes the field activities conducted at Building 50, Building P-11, and Warehouse A. The field work was conducted on January 6, 1999. During the field activities, the following regulatory agencies were present to observe sampling locations and procedures: Environmental Protection Agency (USEPA), and Department of Toxic Substances Control

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(DTSC). Following the field investigation, the sampling locations were surveyed (horizontal and vertical) by Dulin & Boynton of Signal Hill, California. The survey data is provided in Attachment A.

Building 50

Two wood block samples were collected from the northern portion of Building 50 for waste characterization prior to disposal. One sample was collected from an oil-stained area (labeled as WB-1) and the other sample was collected from an area without staining (labeled as WB-2). The samples were dislodged using a steel pry bar, placed in plastic bags, and stored in a cooler containing ice. The samples were delivered to Calscience Environmental Laboratory, Inc. (Calscience) of Garden Grove, California under chain-of-custody and analyzed using the EPA test methods summarized on Table 1.

Building P-11

Soil and groundwater samples were collected adjacent to the drain located outside of Building P-11 using a direct-push sampling rig. The rig initially attempted to collect samples from below the drain, but the sampling probe could not be advanced through the drain's concrete-lined bottom. Grab samples of the liquid and sludge present in the drain were also collected for waste disposal classification purposes. Field sampling procedures are provided in Attachment B.

The soil sampling probe was advanced approximately 1 foot to the east of the drain and soil samples were collected at the following depth intervals: 3-5 feet below ground surface (bgs), 5-7 feet bgs, and 10-12 feet bgs. During soil sampling activities, groundwater was first encountered at approximately 12 feet bgs. The HydroPunch sampling probe was subsequently advanced adjacent to the soil sampling location to a depth of approximately 15 feet bgs. The screened portion of the probe was exposed between 11-15 feet bgs and groundwater samples were collected from this depth interval. Following the collection of soil and groundwater samples, each borehole was backfilled with bentonite.

The soil, groundwater, and drain samples were stored in a cooler containing ice and transported to Calscience under chain-of-custody. The soil sample collected between 3-5 feet bgs (labeled as P-11-3-5) was selected for analysis since the base of the drain was located at this depth interval. The remaining samples were placed on hold.

The soil, groundwater, and sump samples were analyzed using the EPA test methods summarized on Table 1.

Warehouse A

Soil and groundwater samples were collected adjacent to the sump located in the eastern portion of the warehouse using a direct-push sampling rig. Grab samples of the contents in the sump

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were proposed, however, these samples were not collected due to the insufficient volume of liquids in the sump. Field sampling procedures are provided in Attachment B.

The soil sampling probe was advanced approximately 1 foot to the east of the sump and soil samples were collected at the following depth intervals: 3-5 feet bgs, 5-7 feet bgs, and 10-12 feet bgs. During soil sampling activities, groundwater was first encountered at approximately 10 feet bgs. The HydroPunch sampling probe was subsequently advanced adjacent to the soil sampling location to a depth of approximately 14 feet bgs. The screened portion of the probe was exposed between 10-14 feet bgs and groundwater samples were collected from this depth interval. Following the collection of soil and groundwater samples, each borehole was backfilled with bentonite.

The soil and groundwater samples were stored in a cooler containing ice and transported to Calscience under chain-of-custody. The soil sample collected between 5-7 feet bgs (labeled as W-A-5-7) was selected for analysis since the base of the sump was located at this depth interval.

Soil and groundwater samples were analyzed using the EPA test methods summarized on Table 1.

Quality Assurance/Quality Control Samples

For quality assurance/quality control (QA/QC) purposes, duplicate soil and groundwater samples were collected concurrent with the field samples to evaluate the repeatability of the laboratory analyses, one equipment rinseate blank was collected following the sampling activities to evaluate the adequacy of decontamination procedures, and one trip blank sample (prepared by the laboratory) was submitted for analysis to check sample handling procedures.

Duplicate soil and groundwater samples were collected from the same sampling probes as the original samples and were analyzed for the same analyses. The duplicate soil sample collected between 3-5 feet bgs (labeled as P-111-3-5) was selected for analysis since the original sample (labeled as P-11-3-5) was selected for analysis at the same depth interval. The duplicate groundwater samples (labeled as P-111) were collected following the collection of the original samples (labeled as P-11).

The equipment rinseate sample was collected by pouring de-ionized water into the stainless steel bailer used to collect the groundwater samples. The equipment rinseate sample (labeled as EB-1) was analyzed for volatile organic compounds (VOCs) by EPA Method 8260. Additionally, the trip blank sample (labeled as TB-0101) was analyzed for VOCs by EPA Method 8260.

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ANALYTICAL RESULTS

This section summarizes the analytical results of the samples collected during the site investigation activities. The analytical results for the soil and sludge samples collected at Building P-11 and the soil samples collected at Warehouse A are presented in Tables 2 and 3. The analytical results for the groundwater samples collected at Building P-11 and Warehouse A are presented in Tables 4 and 5. The analytical results for the wood block sampled collected at Building 50 are presented in Tables 6 through 9. The analytical laboratory reports and chain of custody forms are provided in Attachment C.

Building 50

Analytical results from the wood block samples identified the presence of VOCs, semi-volatile organic compounds (SVOCs), PCBs, metals, TPH-g, and TPH-e. Analytical results indicated the following:

- VOCs were detected in samples WB-1 and WB-2. Specifically, the VOCs include acetone, p-isopropyl-toluene, 4-methyl 2-pentanone, naphthalene, and toluene at concentrations ranging from 0.200 milligrams per kilogram (mg/kg) to 57.2 mg/kg.
- SVOCs detected in samples WB-1 and WB-2. Specifically, the SVOCs include phenol, 4-methyl phenol, 2,4-dimethyl phenol, naphthalene, 2-methyl naphthalene, 1-methyl naphthalene, acenaphthylene, acenaphthene, dibenzofuran, flourene, phenanthrene, anthracene, fluoranthene, pyrene, benzo(a) anathracene, chrysene, and benzo(b) fluoranthene at concentrations ranging from 60 mg/kg to 2,970 mg/kg.
- PCBs (Aroclor-1260) were detected in sample WB-1 at a concentration of 8.68 mg/kg.
- Metals were detected in samples WB-1 and WB-2. Specifically, the metals include antimony, arsenic, barium, cadmium, chromium, copper, lead, nickel, selenium, silver, vanadium, and zinc at concentrations ranging from 0.76 mg/kg in Table 9 to 91.3 mg/kg.
- TPH-g was detected in samples WB-1 and WB-2 at concentrations of 9.9 mg/kg and 1,430 mg/kg, respectively.
- TPH-e was detected in samples WB-1 and WB-2 at total concentrations of 4,803 mg/kg and 7,073 mg/kg, respectively.
- Cyanide was not detected at/or above the laboratory reporting limit.

Building P-11

Soil analytical results for metals from samples (P-11-3-5 and P-111-3-5 [duplicate sample]) identified metals concentrations below the background concentrations established for the Naval

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Complex (Table 3) with two exceptions. These exceptions were for the detection of cobalt and selenium in the duplicate sample just above the background concentration established for the Naval Complex. The detectable presence of VOCs, SVOCs, PCBs, TPH-g, TPH-d, and oil and grease were not identified at/or above the laboratory reporting limits.

Groundwater analytical results from sample P-11 and P-111 (duplicate sample) indicated 4 milligrams per liter (mg/L) and 8 mg/L of oil and grease, respectively. Groundwater analytical results from sample P-11 and P-111 (duplicate sample) for VOCs identified the presence of 1.8 micrograms-per-liter (ug/L) and 1.0 ug/L, respectively, of methyl tert-butyl ether. Additionally, analytical results indicated the presence of several metals in the groundwater most at concentrations below the background concentrations established for the Naval Complex except for arsenic (Table 5). Arsenic was detected at a concentration of 0.021 mg/L, just above the background value of 0.0185 mg/L. The detectable presence of SVOCs, PCBs, TPH-g, and TPH-d were not identified at or above the laboratory reporting limits.

Sump sludge analytical results from the sample labeled P-11-Sump [sludge] for SVOCs identified only one compound, Bis (2-Ethylhexyl) Phthalate at a concentration of 4.7 mg/kg. The pH of the sludge was reported at 7.67. Additionally, analytical results for metals did not identify any concentrations above the established Total Threshold Limit Concentration (TTLC). However, cadmium, chromium, copper, and lead were detected at concentrations of 12.1 mg/kg, 157 mg/kg, and 292 mg/kg, respectively, which are 10 times greater than the soluble threshold limit concentration (STLC) for cadmium (1 mg/kg), chromium (5 mg/kg), and lead (5 mg/kg). The sludge sample was subsequently analyzed using the waste extraction test (WET) to evaluate if sludge exceeded the established STLCs for waste characterization purposes. Analytical results from the WET indicated 0.81 mg/L of cadmium and 6.39 mg/L of lead. Chromium was not detected above the laboratory reporting limit using the WET.

Analytical results from the fluid collected inside the drain (labeled as P-11-Sump [water]) indicated a pH of 6.02. Additionally, analytical results indicated the presence of metals, specifically antimony, arsenic, barium, cadmium, chromium, cobalt, copper, lead, mercury, nickel, selenium, silver, vanadium, and zinc at concentrations ranging from 0.0039 mg/L to 40.3 mg/L. All metals concentrations were below 1 mg/L except for copper and zinc (28.3 mg/L and 40.3, respectively). The presence of SVOCs were not detected at or above the laboratory reporting limits.

Warehouse A

Analytical results from soil sample W-A-5-7 indicated a pH of 6.07. Additionally, soil analytical results identified metals concentrations below the background concentrations established for the Naval Complex (Table 3). Metals concentrations for antimony, arsenic, barium, chromium, cobalt, copper, lead, nickel, selenium, vanadium, and zinc ranged from 1.06 mg/kg to 78.8

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mg/kg. The detectable presence of VOCs, SVOCs, PCBs, TPH-g, TPH-d, and oil and grease were not identified at or above the laboratory reporting limits.

Analytical results from groundwater sample W-A indicated the following detectable concentrations: 12 mg/L of oil and grease and a pH of 7.80. Additionally, analytical results indicated the presence of metals, specifically arsenic, barium, chromium, copper, molybdenum, vanadium, and zinc at concentrations ranging from 0.010 mg/L to 0.144 mg/L. Metals concentrations were reported below the background concentrations established for the Naval Complex except for arsenic (Table 5). Arsenic was detected at a concentration of 0.023 mg/L in Table 5, just above the background value of 0.0185 mg/L. VOCs, SVOCs, PCBs, TPH-g, and TPH-d were not detected at or above the laboratory reporting limits.

Data Quality Review

This section summarizes the quality control (QC) activities performed as a part of this project. The analytical data were compared to the laboratory established acceptance criteria for the evaluation of precision, accuracy, representativeness, comparability, and completeness.

Soil, groundwater, sump sludge, sump fluid, and wood block samples were analyzed by Calscience Environmental Laboratories, Inc. of Garden Grove, California and reported in one Sample Delivery Group (SDG): 99-01-0064. The data tables in the report document the sample analytical results and include any data qualifiers added as a result of this data review (if any). Sample results are summarized on Tables 2 through 9.

The laboratory analyzed four soil, four groundwater, one sump sludge, one sump fluid, and two wood block samples for the analytical test methods summarized on Table 1. Because these are standard methods for the laboratory, there were control limits determined for surrogate, matrix spike, or laboratory control sample recoveries or duplicate relative percent differences (RPDs).

The analytical results were reviewed to determine the usability of the data for project decision making. The data were subjected to a review of the holding times, blank samples, laboratory control sample/laboratory control sample duplicate (LCS/LCSD) recoveries and relative percent differences (RPDs), reporting limits, surrogate spike recoveries, matrix spike/matrix spike duplicate (MS/MSD) recoveries, and field duplicate samples. Parameters of precision, accuracy, representativeness, comparability, and completeness were used to evaluate the analytical data. This data review found that the data were acceptable without qualification.

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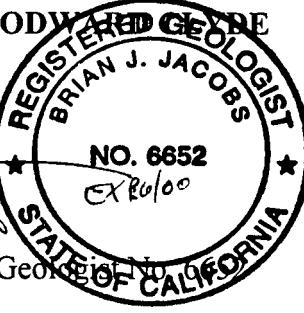
RECOMMENDATIONS

Based on the objectives and analytical results of this investigation, URSGWC recommends the following:

- The analytical results for the sludge, liquid, and wooden blocks should be transmitted to the demolition contractor for waste disposal consideration prior to site demolition activities. All materials should be disposed of in accordance with federal, state, and local regulations.
- The investigation results have adequately characterized the soil and groundwater conditions in the vicinity of the sumps at Building P-11 and Warehouse A and additional site assessment activities do not appear warranted at this time.

If you have any questions, please do not hesitate to call Brian Jacobs at (714) 835-6886.

Sincerely,

URS GREINER WOODWARD CLYDE

Brian J. Jacobs
California Registered Geologist
Job Task Manager



Ed Rogan, P.E.
Project Manager

Attachments

TABLE 1

SUMMARY OF ANALYTICAL TEST METHODS
LONG BEACH NAVAL SHIPYARD - BUILDING 50 / P-11 and WAREHOUSE A

Location	Sample Media	Analyte and EPA Test Method									
		VOCs 8260	SVOCs 8270	PCBs 8080	Metals 6000/7000	TPH-g 8015m	TPH-d 8015m	TPH-cc 8015m	O&G 413.1	pH 9045/150.1	Cyanide 9010
Buidling 50	Wood Block	X	X	X	X	X		X			X
Buidling P-11	Soil	X	X	X	X	X	X		X		
	Groundwater	X	X	X	X	X	X		X		
	Sump Liquid		X		X					X	
	Sump Sludge		X		X					X	
Warehouse A	Soil	X	X		X	X	X		X	X	X
	Groundwater	X	X		X	X	X		X	X	X

Notes: VOCs - Volatile Organic Compounds

SVOCs - Semi Volatile Organic Compounds

PCBs - Polychlorinated Biphenyls

TPH-g Total Petroleum Hydrocarbons as gasoline

TPH-d Total Petroleum Hydrocarbons as diesel

TPH-cc Total Petroleum Hydrocarbons with carbon chain breakout

O&G Oil and Grease

TABLE 2

**ANALYTICAL RESULTS FOR SOIL AND SLUDGE SAMPLES
LONG BEACH NAVAL SHIPYARD - BUILDING P-11 AND WAREHOUSE A
JANUARY 6, 1999**

Area	Sample ID	Sample Depth (feet bgs)	Sample Date	Media	Oil & Grease 413.1 (mg/kg)	pH 9045B	Cyanide 9010A (mg/kg)	TPH-d 8015M (mg/kg)	TPH-g 8015M (mg/kg)	PCBs 8082 (ug/kg)	VOCs 8260B (ug/kg)	SVOCs 8270B (mg/kg)
Building P-11	P-11-3-5	3-5	1/6/99	Soil	ND	-	-	ND	ND	ND	ND	ND
	P-11-3-5 (dup)	3-5	1/6/99	Soil	ND	-	-	ND	ND	ND	ND	ND
	P-11-SUMP	Grab	1/6/99	Sludge	-	7.67	-	-	-	--	-	4.7(a)
Warehouse A	W-A-5-7	5-7	1/6/99	Soil	ND	6.07	ND	ND	ND	ND	ND	ND

NOTES: ND = not detected above the laboratory reporting limit

- = not analyzed

bgs = below ground surface

dup = duplicate sample

ug/kg = micrograms per kilogram

mg/kg = milligrams per kilogram

TPH-d = Total Petroleum Hydrocarbons-diesel

TPH-g = Total Petroleum Hydrocarbons-gasoline

PCBs = Polychlorinated Biphenyls

VOCs = Volatile Organic Compounds

SVOCs = Semi Volatile Organic Compounds

(a) Bis(2-Ethylhexyl) Phthalate was detected at a concentration of 4.7 mg/kg. No other SVOCs were detected.

TABLE 3
ANALYTICAL RESULTS FOR SOIL AND SLUDGE SAMPLES
LONG BEACH NAVAL SHIPYARD-BUILDING P-11 AND WAREHOUSE A
JANUARY 6, 1999

Area	Sample ID	Sample Depth (feet bgs)	Sample Date	TITLE 22 METALS - EPA METHOD 6010A																
				ANTIMONY (mg/kg)	ARSENIC (mg/kg)	BARIUM (mg/kg)	BERYLLIUM (mg/kg)	CADMIUM (mg/kg)	CHROMIUM (mg/kg)	COBALT (mg/kg)	COPPER (mg/kg)	LEAD (mg/kg)	MERCURY 7471A (mg/kg)	MOLYBDENUM (mg/kg)	NICKEL (mg/kg)	SELENIUM (mg/kg)	SILVER (mg/kg)	THALLIUM (mg/kg)	VANADIUM (mg/kg)	ZINC (mg/kg)
Bldg. P-11	P-11-3-5	3-5	1/6/99	1.10	4.58	74.8	ND	ND	12.8	8.83	8.91	1.89	ND	0.30	10.1	1.44	ND	ND	20.8	34.7
	P-111-3-5 (dup)	3-5	1/6/99	2.38	6.21	131	0.48	0.50	30.5	12.6	30.9	8.24	ND	0.60	22.8	2.53	ND	ND	40.8	74.0
	P-11-SUMP	Grab	1/6/99	22.5	5.77	139	ND	12.1/0.81 ⁽¹⁾	157/ND ⁽¹⁾	9.65	634	282/8.38 ⁽²⁾	0.40	13.1	35.8	7.38	0.74	ND	11.3	1020
Warehouse A	W-A-5-7	5-7	1/6/99	1.08	1.75	78.8	ND	ND	14.8	8.04	11.8	2.20	ND	ND	11.7	1.41	ND	ND	24.4	40.8
COMPARISON CONCENTRATION LEVELS (mg/kg)																				
	$U_{TL(95,95)}$ ⁽¹⁾			9.66	7.41	234.59	1.25	1.66	60.59	12.25	639.94	233.58	1.61	—	33.22	1.87	1.51	4.68	50.28	693.84
	TTLC ⁽²⁾			500	500	10,000	75	100	2,500/500	8,000	2,500	1,000	20	3,500	2,000	100	500	700	2,400	5,000
	STLC ⁽³⁾			15	5	100	0.75	1	5	80	25	5	0.2	350	20	1	5	7	24	250

NOTES: ND = not detected above the laboratory reporting limit

— = no value established for $U_{TL(95,95)}$

bgs = below ground surface

mg/kg = milligrams per kilogram

dup = duplicate sample

(1) Concentration ranges referenced from "Summary Statistics for Background Metal Concentrations in Soil, Naval Station Long Beach, CA".

UTL (95,95) = upper tolerance limit of the 95th percentile of the background metal distribution; confidence 95%.

(2) TTLC - Total Threshold Limit Concentration, California Code of Regulations, Title 22, Section 66261.24, February 16, 1996.

(3) STLC - Soluble Threshold Limit Concentration, California Code of Regulations, Title 22, Section 66261.24, February 16, 1996.

(4) TTLC/STLC results. STLC analyzed by the Waste Extraction Test method and reported in mg/L.

TABLE 4

**ANALYTICAL RESULTS FOR GROUNDWATER AND SUMP FLUID SAMPLES
LONG BEACH NAVAL SHIPYARD - BUILDING P-11 AND WAREHOUSE A
JANUARY 6, 1999**

Area	Sample ID	Sample Depth (feet bgs)	Sample Date	Media	Oil & Grease 413.1 (mg/L)	pH 150.1	Cyanide 9010A (mg/L)	TPH-d 8015M (ug/L)	TPH-g 8015M (ug/L)	PCBs 8082 (ug/L)	VOCs 8260B (ug/L)	SVOCs 8270B (ug/L)
Building P-11	P-11	11-15	1/6/99	Water	4	-	-	ND	ND	ND	1.8 (a)	ND
	P-111 (dup)	11-15	1/6/99	Water	8	-	-	ND	ND	ND	1.0 (a)	ND
	P-11-SUMP	Grab	1/6/99	Fluid	-	6.02	-	-	-	-	-	ND
Warehouse A	W-A	10-14	1/6/99	Water	12	7.80	ND	ND	ND	-	ND	ND
Trip Blank	TB-0101	Grab	1/6/99	Water	-	-	-	-	-	-	ND	-
Equipment Blank	EB-1	Grab	1/6/99	Water	-	-	-	-	-	-	ND	-

NOTES: ND = not detected above the laboratory reporting limit

- = not analyzed

bgs = below ground surface

ug/L = micrograms per liter

mg/L = milligrams per liter

dup = duplicate sample

TPH-d = Total Petroleum Hydrocarbons-diesel

TPH-g = Total Petroleum Hydrocarbons-gasoline

PCBs = Polychlorinated Biphenyls

VOCs = Volatile Organic Compounds

SVOCs = Semi Volatile Organic Compounds

(a) methyl tert-butyl ether (MTBE) was detected at concentrations of 1.8 ug/L (P-11) and 1.0 ug/L (P-111). No other VOCs were detected.

TABLE 5
ANALYTICAL RESULTS FOR GROUNDWATER AND SUMP FLUID SAMPLES
LONG BEACH NAVAL SHIPYARD - BUILDING P-11 AND WAREHOUSE A
JANUARY 6, 1999

Area	Sample ID	Sample Depth (feet bgs)	Sample Date	TITLE 22 METALS - EPA METHOD 6010A																
				ANTIMONY (mg/L)	ARSENIC (mg/L)	BARIUM (mg/L)	BERYLLIUM (mg/L)	CADMIUM (mg/L)	CHROMIUM (mg/L)	COBALT (mg/L)	COPPER (mg/L)	LEAD (mg/L)	MERCURY 7471A (mg/L)	MOLYBDENUM (mg/L)	NICKEL (mg/L)	SELENIUM (mg/L)	SILVER (mg/L)	THALLIUM (mg/L)	VANADIUM (mg/L)	ZINC (mg/L)
Bldg. P-11	P-11	11-15	1/6/99	ND	0.021	0.140	ND	ND	0.009	ND	0.015	ND	ND	0.008	ND	ND	ND	ND	0.007	0.062
	P-111 (dup)	11-15	1/6/99	ND	0.018	0.16	ND	ND	0.029	0.006	0.038	0.012	ND	0.009	0.014	ND	ND	ND	0.027	0.088
	P-11-SUMP	Fluid	1/6/99	0.054	0.028	0.381	ND	1.03	0.206	0.183	28.3	1.50	0.0039	ND	0.950	0.016	0.078	ND	0.035	40.3
Warehouse A	W-A	10-14	1/6/99	ND	0.023	0.144	ND	ND	0.010	ND	0.020	ND	ND	0.010	ND	ND	ND	ND	0.012	0.033
COMPARISON CONCENTRATION LEVELS (mg/L)																				
	$U_{TL(95.95)}^{(1)}$			0.06488	0.01845	0.22270	0.00210	0.00216	0.28315	0.06457	0.10773	0.02232	0.00062	—	0.12189	0.01177	0.00624	0.00334	0.04005	0.28403
	TTL ⁽²⁾			500	500	10,000	75	100	2,500/500	8,000	2,500	1,000	20	3,500	2,000	100	500	700	2,400	5,000
	STLC ⁽³⁾			15	5	100	0.75	1	5	80	25	5	0.2	350	20	1	5	7	24	250

NOTES: ND = not detected above the laboratory reporting limit

— = no value established for $U_{TL(95.95)}$

bgs = below ground surface

mg/L = milligrams per liter

dup = duplicate sample

(1) Concentration ranges referenced from "Summary Statistics for Background Metal Concentrations in Groundwater, Naval Station Long Beach, CA".

UTL (95.95) = upper tolerance limit of the 95th quartile of the background metal distribution; confidence 95%.

(2) TTLC - Total Threshold Limit Concentration, California Code of Regulations, Title 22, Section 66261.24, February 16, 1996.

(3) STLC -Soluble Threshold Limit Concentration, California Code of Regulations, Title 22, Section 66261.24, February 16, 1996.

TABLE 6
ANALYTICAL RESULTS FOR WOOD BLOCK SAMPLES
LONG BEACH NAVAL SHIPYARD - BUILDING 50
JANUARY 6, 1999

Area	Sample ID	Sample Depth (feet bgs)	Sample Date	Media	SVOCs 8270C (mg/kg)							
					Phenol	4-Methyl Phenol	2,4-Dimethyl Phenol	Naphthalene	2-Methyl Naphthalene	1-Methyl Naphthalene	Acenaphthylene	Acenaphthene
Building 50	WB-1	Surface	1/6/99	Wood	ND	ND	ND	1820	310	150	ND	490
	WB-2	Surface	1/6/99	Wood	110	120	60	490	250	140	130	260

(Continued from above table)

Area	Sample ID	Sample Depth (feet bgs)	Sample Date	Media	SVOCs 8270C (mg/kg) (Continued)								
					Dibenzofuran	Flourene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(a) Anthracene	Chrysene	Benzo(b) Fluoranthene
Building 50	WB-1	Surface	1/6/99	Wood	310	300	2430	590	2070	500	510	460	560
	WB-2	Surface	1/6/99	Wood	730	240	2970	820	2120	2430	990	1180	480

NOTES: ND = not detected above the laboratory reporting limit
bgs = below ground surface
mg/kg = milligrams per kilogram
SVOCs = Semi Volatile Organic Compounds
No other SVOCs were detected.

TABLE 7

**ANALYTICAL RESULTS FOR WOOD BLOCK SAMPLES
LONG BEACH NAVAL SHIPYARD - BUILDING 50
JANUARY 6, 1999**

Area	Sample ID	Sample Depth (feet bgs)	Sample Date	Media	TPH-g 8015M (mg/kg)	Cyanide 9010A (mg/kg)	PCBs Aroclor-1260 8082 (mg/kg)	VOCs 8260B (mg/kg)				
								Acetone	p-isopropyl-toluene	4-Methyl 2-Pentanone	Naphthalene	Toluene
Building 50	WB-1	Surface	1/6/99	Wood	1430	ND	8.680	57.2	0.160	1.030	4.940	0.200
	WB-2	Surface	1/6/99	Wood	9.9	ND	ND	ND	ND	ND	2.740	ND

NOTES: ND = not detected above the laboratory reporting limit
 bgs = below ground surface
 mg/kg = milligrams per kilogram
 TPH-g = Total Petroleum Hydrocarbons-gasoline
 PCBs = Polychlorinated Biphenyls
 VOCs = Volatile Organic Compounds

TABLE 8
ANALYTICAL RESULTS OF WOOD BLOCK SAMPLES
LONG BEACH NAVAL SHIPYARD - BUILDING 50
JANUARY 6, 1999

Area	Sample ID	Sample Depth (feet bgs)	Sample Date	Media	Carbon Chain Distribution - EPA 8015 modified												
					C7-C8 (mg/kg)	C9-C10 (mg/kg)	C11-C12 (mg/kg)	C13-C14 (mg/kg)	C15-C16 (mg/kg)	C17-C18 (mg/kg)	C19-C20 (mg/kg)	C21-C22 (mg/kg)	C23-C24 (mg/kg)	C25-C28 (mg/kg)	C29-C32 (mg/kg)	C33-C36 (mg/kg)	Total (mg/kg)
Building 50	WB-1	Surface	1/6/99	Wood	ND	60	53	ND	100	231	194	393	363	1160	1300	949	4803
	WB-2	Surface	1/6/99	Wood	ND	ND	ND	63	258	883	595	1150	394	1260	1340	1140	7073

NOTES: ND = not detected above the laboratory reporting limit
bgs = below ground surface
mg/kg = milligrams per kilogram
C7-C8 Indicates Carbon 7 to Carbon 8.

TABLE 9
ANALYTICAL RESULTS FOR WOOD BLOCK SAMPLES
LONG BEACH NAVAL SHIPYARD - BUILDING 50
JANUARY 6, 1999

Area	Sample ID	Sample Depth (feet bgs)	Sample Date	TITLE 22 METALS - EPA METHOD 6010A																
				ANTIMONY (mg/kg)	ARSENIC (mg/kg)	BARIUM (mg/kg)	BERYLLIUM (mg/kg)	CADMIUM (mg/kg)	CHROMIUM (mg/kg)	COBALT (mg/kg)	COPPER (mg/kg)	LEAD (mg/kg)	MERCURY 7471A (mg/kg)	MOLYBDENUM (mg/kg)	NICKEL (mg/kg)	SELENIUM (mg/kg)	SILVER (mg/kg)	THALLIUM (mg/kg)	VANADIUM (mg/kg)	ZINC (mg/kg)
Building 50	WB-1	Surface	1/6/99	2.48	0.76	16.0	ND	0.86	2.29	ND	22.8	61.6	ND	ND	1.96	0.81	ND	ND	0.85	91.3
	WB-2	Surface	1/6/99	2.17	1.09	7.21	ND	ND	0.72	ND	4.64	10.7	ND	ND	0.36	0.96	1.01	ND	ND	23.8
COMPARISON CONCENTRATION LEVELS (mg/kg)																				
	TTL ⁽¹⁾			500	500	10,000	75	100	2,500/500	8,000	2,500	1,000	20	3,500	2,000	100	500	700	2,400	6,000
	STLC ⁽²⁾			15	5	100	0.75	1	5	80	25	6	0.2	350	20	1	5	7	24	250

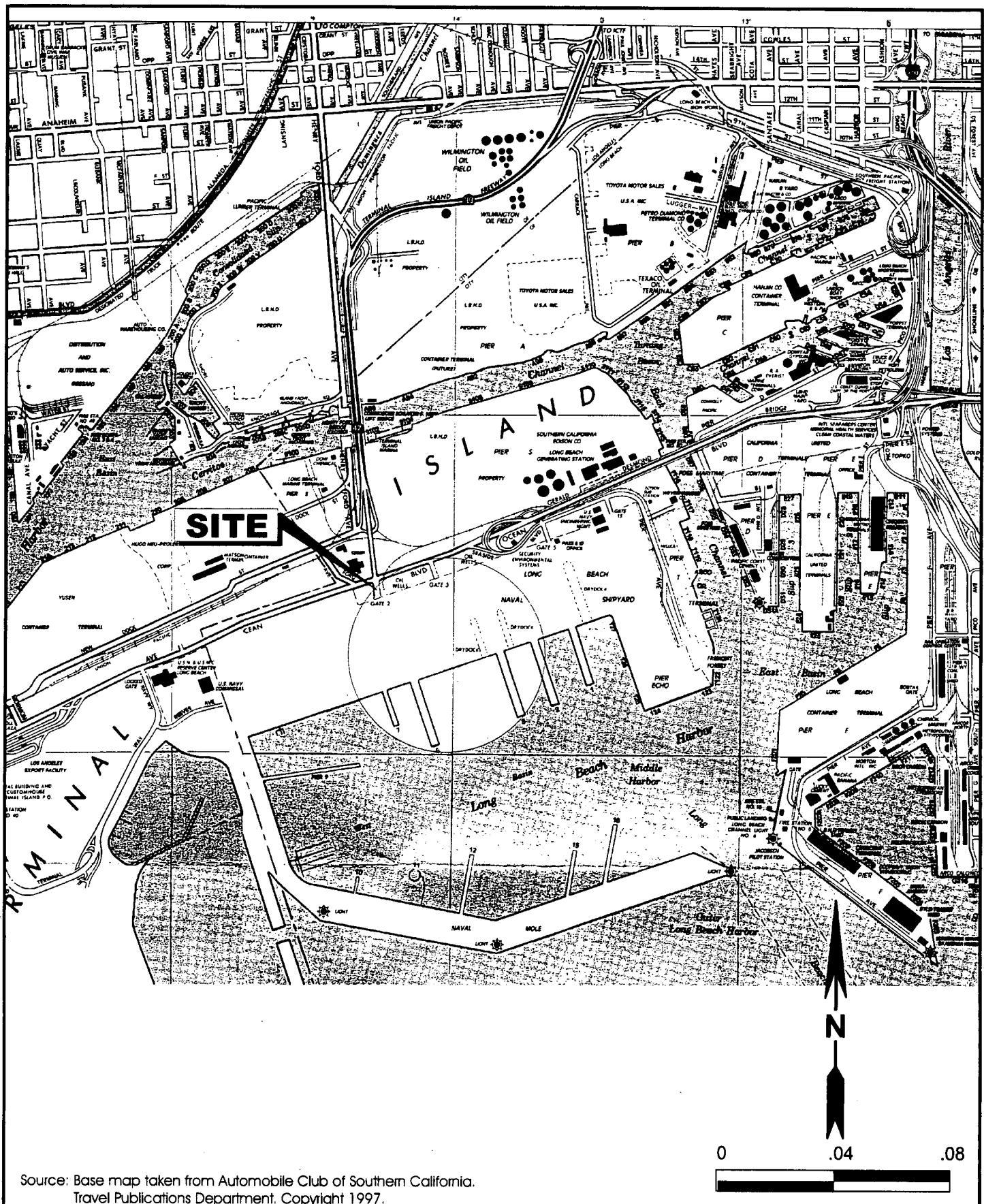
NOTES: ND = not detected above the laboratory reporting limit

bgs = below ground surface

mg/kg = milligrams per kilogram

(1) TTL^C - Total Threshold Limit Concentration, California Code of Regulations, Title 22, Section 66261.24, February 16, 1996.

(2) STLC - Soluble Threshold Limit Concentration, California Code of Regulations, Title 22, Section 66261.24, February 16, 1996.



SITE LOCATION MAP

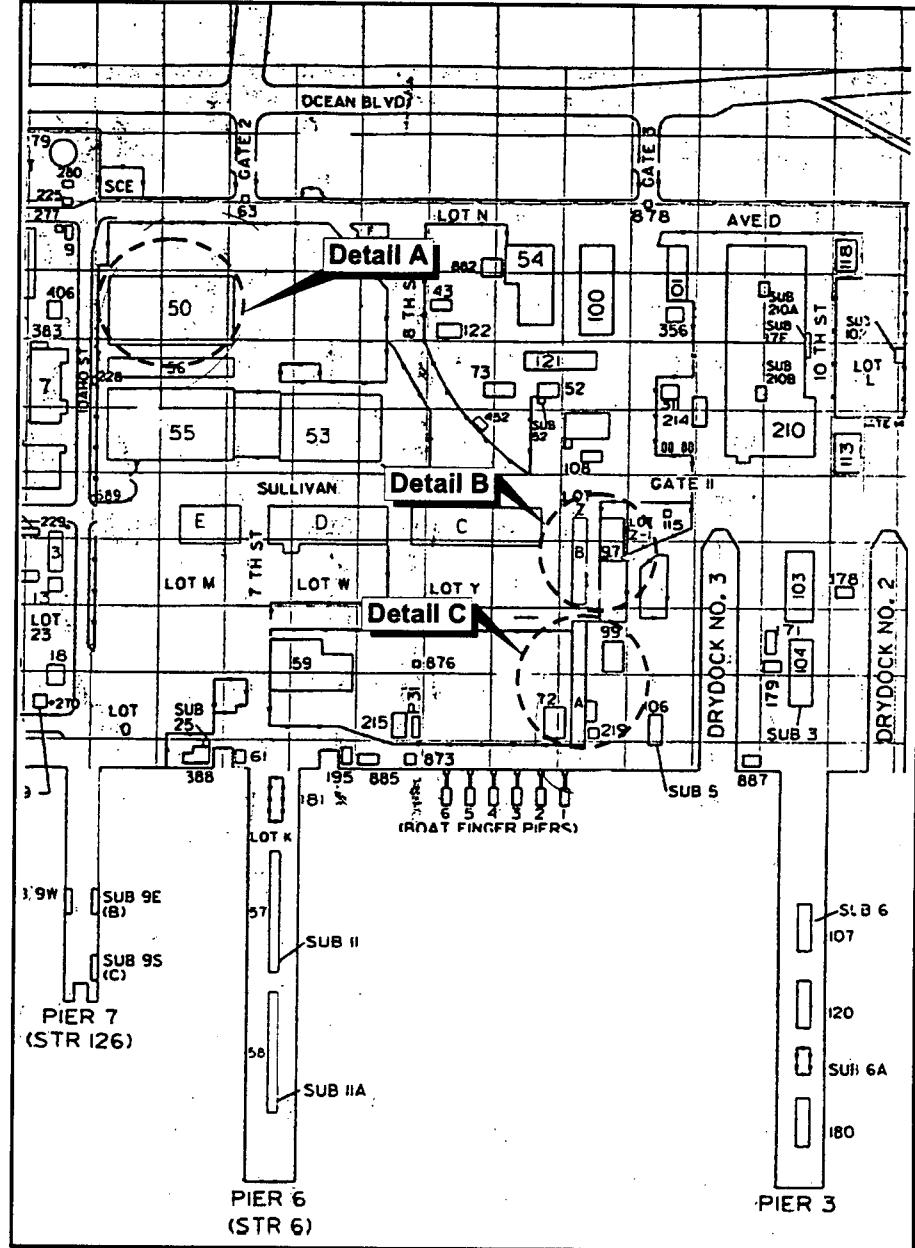
Project No.: 57974W010X00

Date: JANUARY 1999

Project:

POLB - NAVAL SHIPYARD

Fig. 1



Source: Base map taken from Long Beach Naval Shipyard Report.
P.W. Drawing No. 5536, Sheet 1 Of 1.
Titled: Terminal Island U.S. Naval Facilities.

A horizontal scale bar with numerical markings at 0, 500, and 1,000. The bar is divided into four equal segments by vertical tick marks. The first segment is shaded black, while the other three are white.

SITE PLAN

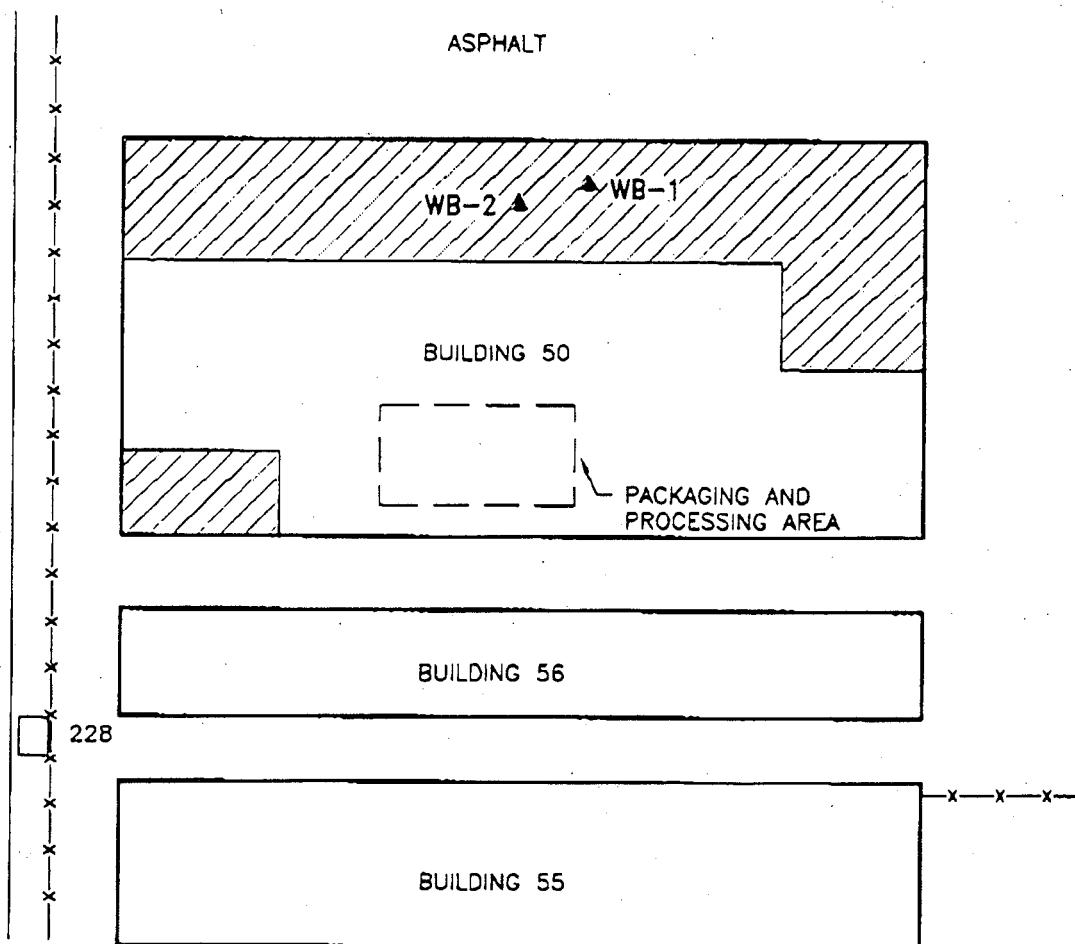
Project No.: 57974W010X00

Date: JANUARY 1999

Project-

POLB - NAVAL SHIPYARD

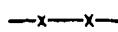
Fig. 2



LEGEND



WOOD BLOCK FLOORS (APPROXIMATE LOCATION)



CHAIN LINK FENCE

WB-1

▲ WOOD BLOCK FLOOR SAMPLING
LOCATION AND DESIGNATION



DETAIL A - WOOD BLOCK FLOOR SAMPLING LOCATIONS, BUILDING 50

Project No.:

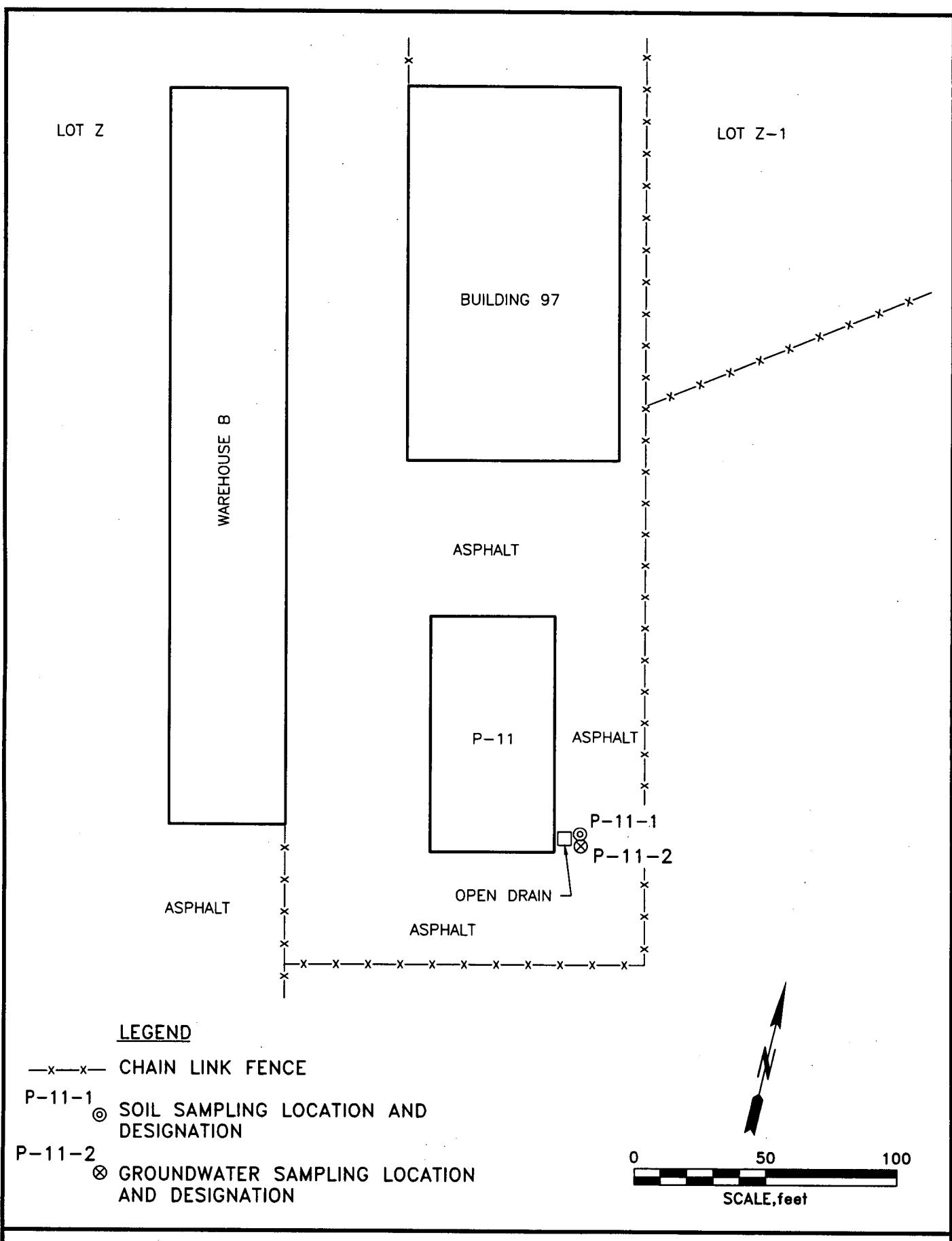
974W010X

Date: JAN. 1999

Project:

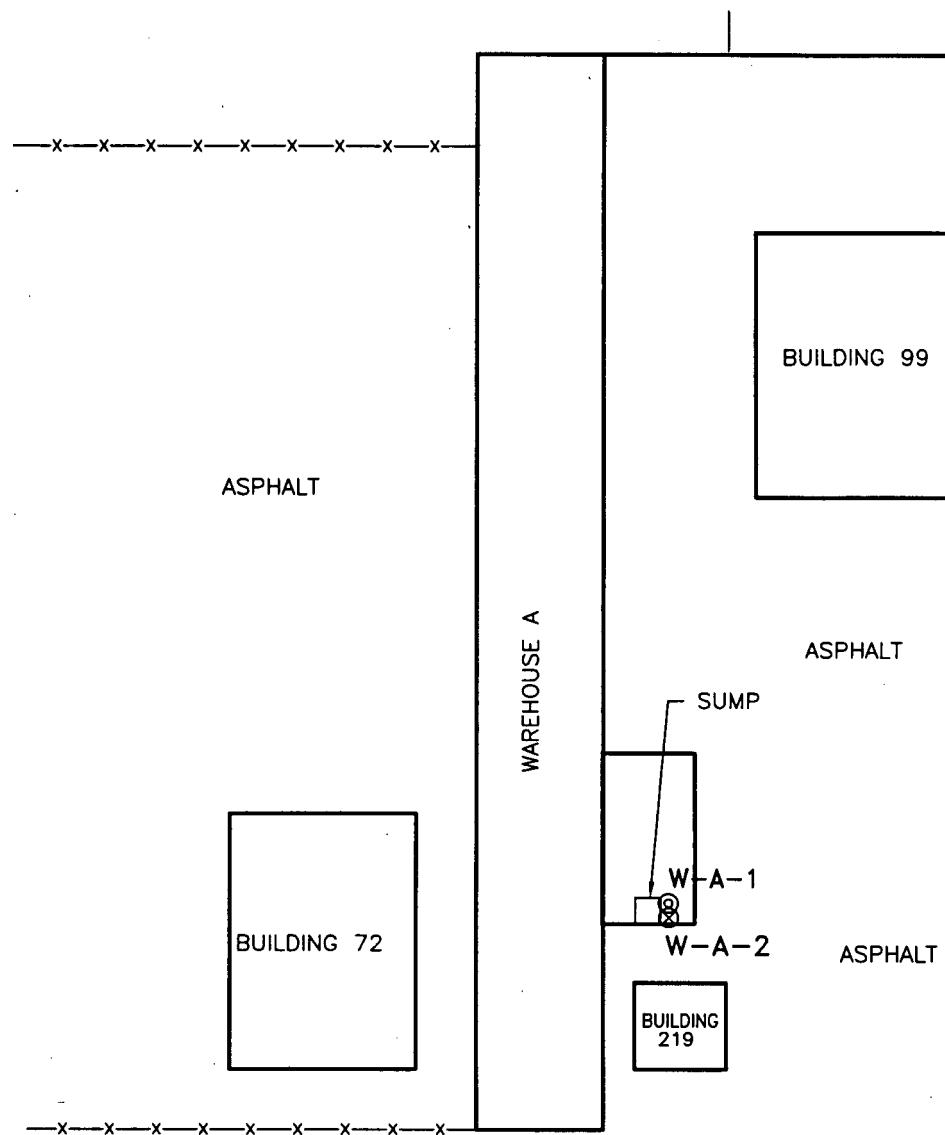
POLB-NAVAL SHIPYARD

Fig. 3



DETAIL B - SOIL/GROUNDWATER SAMPLING LOCATIONS, FLOOR DRAIN AT BUILDING P-11

Project No.:	974W010X	Date:	JAN. 1999	Project:	POLB-NAVAL SHIPYARD	Fig.	4
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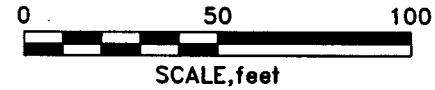


LEGEND

—x—x— CHAIN LINK FENCE

W-A-1  SOIL SAMPLING LOCATION AND DESIGNATION

W-A-2  GROUNDWATER SAMPLING LOCATION AND DESIGNATION



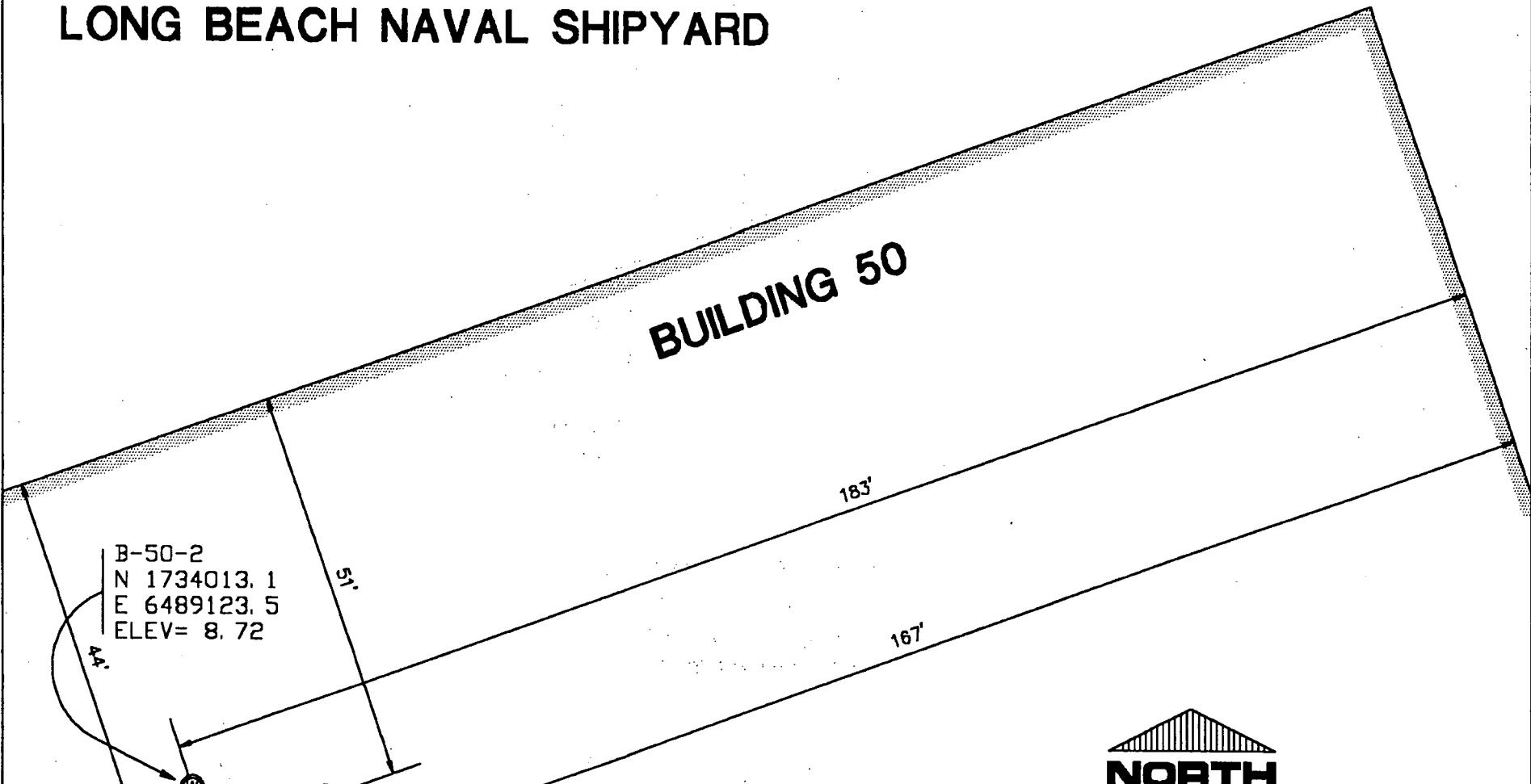
DETAIL C - SOIL/GROUNDWATER SAMPLING LOCATIONS, SUMP AT WAREHOUSE A

Project No.: 974W010X	Date: JAN. 1999	Project: POLB-NAVAL SHIPYARD	Fig. 5
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ATTACHMENT A

SURVEY RESULTS

URS GREINER WOODWARD CLYDE LONG BEACH NAVAL SHIPYARD



SCALE 1" = 20'

DATUM NOTE:

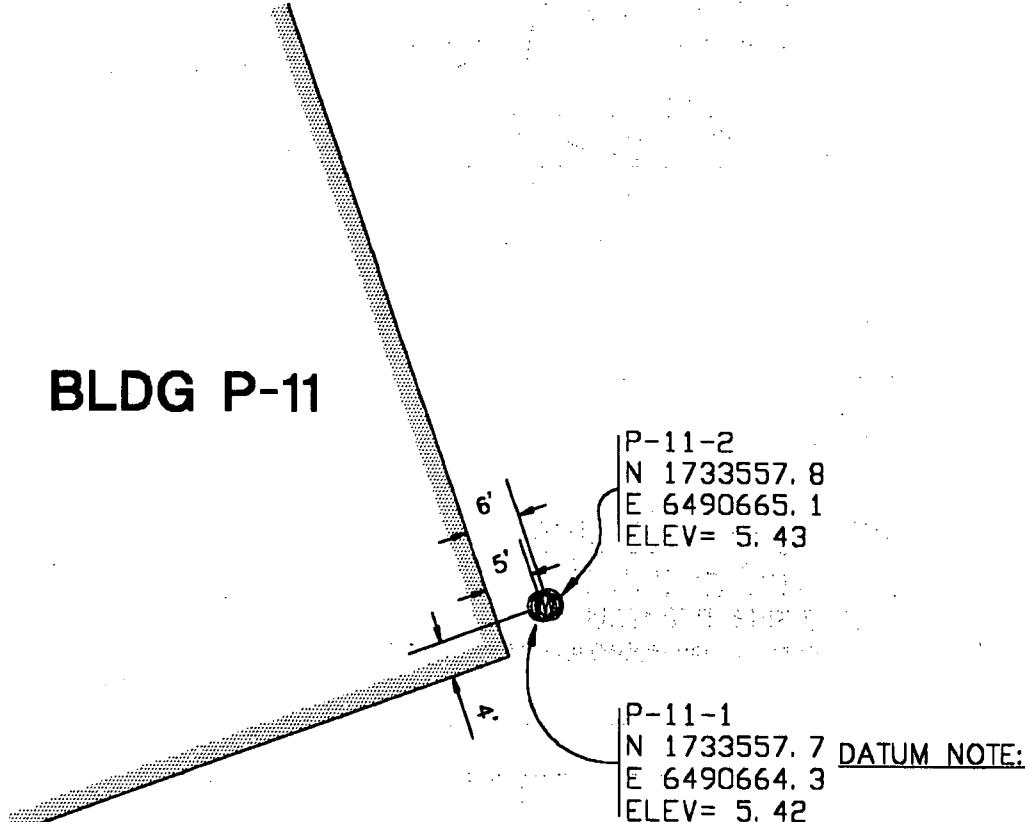
HORIZONTAL COORDINATES ARE
CALIFORNIA STATE PLANE ZONE V (NAD83)
VERTICAL DATUM IS REFERENCED TO PORT
OF LONG BEACH BENCHMARKS ON MLLW

DATE OF SURVEY: 12 JAN 99

DULIN & BOYNTON
LICENSED SURVEYORS

URS GREINER WOODWARD CLYDE LONG BEACH NAVAL SHIPYARD

BLDG P-11



SCALE 1" = 20'

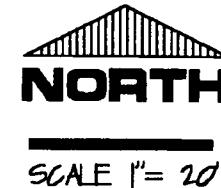
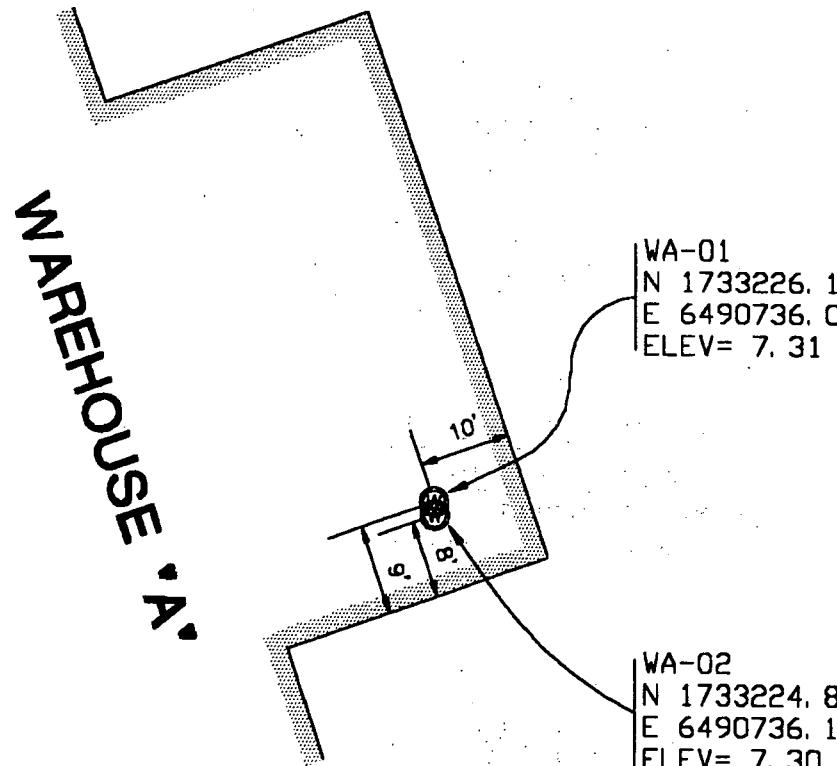
HORIZONTAL COORDINATES ARE
CALIFORNIA STATE PLANE ZONE V (NAD83)
VERTICAL DATUM IS REFERENCED TO PORT
OF LONG BEACH BENCHMARKS ON MLLW

DATE OF SURVEY: 12 JAN 99

DULIN & BOYNTON
LICENSED SURVEYORS

728 E. WILLOW STREET • (562)426-6484 FAX(562)426-7707 • SIGNAL HILL, CA. 90636

URS GREINER WOODWARD CLYDE LONG BEACH NAVAL SHIPYARD



DATUM NOTE:

HORIZONTAL COORDINATES ARE
CALIFORNIA STATE PLANE ZONE V (NAD83)
VERTICAL DATUM IS REFERENCED TO PORT
OF LONG BEACH BENCHMARKS ON MLLW

DATE OF SURVEY: 12 JAN 99

DULIN & BOYNTON
LICENSED SURVEYORS

728 E. WILLOW STREET • (562)426-6484 FAX(562)426-7707 • SIGNAL HILL, CA. 90506

ATTACHMENT B

FIELD SAMPLING PROCEDURES

This section summarizes the field procedures utilized for soil, groundwater, and sludge sample collection. In addition, information regarding decontamination and investigation derived waste are also discussed.

Soil Sampling Procedures

Soil samples were collected using a direct-push method. A sampler containing three clean, stainless steel sleeves was hydraulically advanced to the appropriate sampling depth intervals. The soil from the top sleeve was placed into a sealable plastic bag and allowed to equilibrate for at least 10 minutes. The organic vapor levels in the headspace were then measured using an organic vapor analyzer (OVA). The middle sleeve was used as a duplicate sample, if needed, and the bottom sleeve was used as the field sample. Field and duplicate samples collected for chemical analysis were sealed on each end with clean Teflon® sheets, capped with polyvinyl chloride (PVC) end caps, labeled, placed in sealable plastic bags, and stored in an ice-filled cooler pending transportation to a state-certified analytical laboratory. The samples were transported under chain-of-custody in order to maintain the traceability of the samples from the time the samples are collected until laboratory data are issued.

Groundwater Sampling Procedures

Groundwater samples were collected from temporary well points using the Hydropunch® sampling technique. The Hydropunch® temporary well points consist of a cone-shaped drive tip, approximately four feet of retractable stainless steel, slotted well screen, and 1.5-inch diameter drive rod. The well screen is housed inside a steel drive casing during installation on the well point. When the desired depth was reached, the well casing was retracted exposing the screen interval. After groundwater entered the wellpoint, the well was purged with a bailer and sampled. Groundwater samples were collected in containers provided by the analytical laboratory, labeled, placed in sealable plastic bags, and stored in an ice-filled cooler pending transportation to a state-certified analytical laboratory. The samples were transported under chain-of-custody in order to maintain the traceability of the samples from the time the samples are collected until laboratory data are issued.

Drain Sampling Procedures

The contents of the drain at Building P-11 were collected using the grab sampling method. Sample containers provided by the analytical laboratory were lowered into the drain to collect samples of the liquid and sludge. Following the collection of these samples, the containers were labeled, placed in sealable plastic bags, and stored in an ice-filled cooler pending transportation to a state-certified analytical laboratory. The samples were transported under chain-of-custody in order to maintain the traceability of the samples from the time the samples are collected until laboratory data are issued.

Equipment Decontamination Procedures

The field decontamination process for soil and groundwater sampling equipment consisted of wiping the equipment of excess soil, washing in a solution of non-phosphate detergent (Liquinox), rinsing with de-ionized water, and drying with a paper towel. The equipment was cleaned prior to use, between use, and prior to leaving the site.

Disposal of Investigation-Derived Waste

Investigation-derived waste (decontamination water and purge water) was containerized in a 55-gallon drum. The drum was properly sealed, labeled, and temporarily stored to the northeast of Building P-11. Disposal of the investigation-derived waste will be determined based on the analytical results of the samples collected during the site investigation.

ATTACHMENT C

LABORATORY DATA SHEETS AND CHAIN OF CUSTODY FORMS

**Calscience
Environmental
Laboratories, Inc.**

January 15, 1999

Brian Jacobs
Woodward-Clyde Consultants
2020 East 1st Street, Suite 400
Santa Ana, CA 92705

Subject: **Calscience Work Order Number:** 99-01-0064
Client Reference: POLB-Naval Shipyard

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 01/06/99 and analyzed in accordance with the attached chain-of-custody.

The results in this analytical report are limited to the samples tested, and any reproduction of this report must be made in its entirety.

If you have any questions regarding this report, require sampling supplies or field services, or information on our analytical services, please feel free to call me at (714) 895-5494.

Sincerely,



Calscience Environmental
Laboratories, Inc.
Marycarol Valenzuela
Project Manager



William H. Christensen
Quality Assurance Manager

ANALYTICAL REPORT

Woodward-Clyde Consultants
2020 East 1st Street, Suite 400
Santa Ana, CA 92705

Date Sampled: 01/06/99
Date Received: 01/06/99
Date Analyzed: 01/12/99

Attn: Brian Jacobs
RE: POLB-Naval Shipyard

Work Order No.: 99-01-0064
Method: EPA 9010A
Page 1 of 1

All concentrations are reported in mg/kg (ppm).

<u>Sample Number</u>	<u>Total Cyanide Concentration</u>	<u>Reporting Limit</u>
WB-1	ND	0.5
WB-2	ND	0.5
Method Blank	ND	0.5

ND denotes not detected at indicated reportable limit.

Each sample was received by CEL chilled, intact, and with chain-of-custody attached.

**Calscience
Environmental
Laboratories, Inc.**

ANALYTICAL REPORT

Woodward-Clyde Consultants Date Sampled: 01/06/99
2020 East 1st Street, Suite 400 Date Received: 01/06/99
Santa Ana, CA 92705 Date Extracted: 01/08/99
Attn: Brian Jacobs Date Analyzed: 01/09/99
RE: POLB-Naval Shipyard Work Order No.: 99-01-0064
 Method: EPA 8015M
 Page 1 of 3

All concentrations are reported in mg/kg (ppm).

<u>Analyte</u>	<u>Concentration</u>	<u>Reporting Limit</u>
Sample Number: WB-1		
C7	ND	50
C8	ND	50
C9-C10	60	50
C11-C12	53	50
C13-C14	ND	50
C15-C16	100	50
C17-C18	231	50
C19-C20	194	50
C21-C22	393	50
C23-C24	363	50
C25-C28	1160	50
C29-C32	1300	50
C33-C36	949	50

ANALYTICAL REPORT

Woodward-Clyde Consultants
2020 East 1st Street, Suite 400
Santa Ana, CA 92705

Date Sampled: 01/06/99
Date Received: 01/06/99
Date Extracted: 01/08/99
Date Analyzed: 01/09/99
Work Order No.: 99-01-0064
Method: EPA 8015M
Page 2 of 3

Attn: Brian Jacobs
RE: POLB-Naval Shipyard

All concentrations are reported in mg/kg (ppm).

<u>Analyte</u>	<u>Concentration</u>	<u>Reporting Limit</u>
C7	ND	50
C8	ND	50
C9-C10	ND	50
C11-C12	ND	50
C13-C14	53	50
C15-C16	258	50
C17-C18	883	50
C19-C20	595	50
C21-C22	1150	50
C23-C24	394	50
C25-C28	1260	50
C29-C32	1340	50
C33-C36	1140	50

ANALYTICAL REPORT

Woodward-Clyde Consultants 2020 East 1st Street, Suite 400 Santa Ana, CA 92705	Date Sampled:	01/06/99
	Date Received:	01/06/99
	Date Extracted:	01/08/99
	Date Analyzed:	01/08/99
	Work Order No.:	99-01-0064
Attn: Brian Jacobs RE: POLB-Naval Shipyard	Method:	EPA 8015M
	Page 3 of 3	

All concentrations are reported in mg/kg (ppm).

<u>Analyte</u>	<u>Concentration</u>	<u>Reporting Limit</u>
Sample Number: Method Blank		
C7	ND	5
C8	ND	5
C9-C10	ND	5
C11-C12	ND	5
C13-C14	ND	5
C15-C16	ND	5
C17-C18	ND	5
C19-C20	ND	5
C21-C22	ND	5
C23-C24	ND	5
C25-C28	ND	5
C29-C32	ND	5
C33-C36	ND	5

ND denotes not detected at indicated reportable limit.

Each sample was received by CEL chilled, intact, and with chain-of-custody attached.

ANALYTICAL REPORT

Woodward-Clyde Consultants
2020 East 1st Street, Suite 400
Santa Ana, CA 92705

Date Sampled: 01/06/99
Date Received: 01/06/99
Date Digested: 01/11/99
Date Analyzed: 01/12/99
Work Order No.: 99-01-0064
Method: EPA 7471A
Page 1 of 1

Attn: Brian Jacobs
RE: POLB-Naval Shipyard

All concentrations are reported in mg/kg (ppm). Analyses for Mercury were conducted on a total digestion.

<u>Sample Number</u>	<u>Mercury Concentration</u>	<u>Reporting Limit</u>
WB-1	ND	0.25
WB-2	ND	0.25
Method Blank	ND	0.25

ND denotes not detected at indicated reportable limit.

Each sample was received by CEL chilled, intact, and with chain-of-custody attached.



ANALYTICAL REPORT
EPA 6010B CAC, Title 22 Metals

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	990111lcs1	Date Collected:	01/06/99
Matrix:	Solid	Date Received:	01/06/99
Preparation:	Total Digestion	Date Prepared:	01/11/99
Method:	EPA 6010B	Date Analyzed:	01/12/99

Client Sample Number: WB-1
Lab Sample Number: 99-01-0064-13

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Antimony	2.48	0.75		mg/kg
Arsenic	0.76	0.75		mg/kg
Barium	16.0	0.50		mg/kg
Beryllium	ND	0.25		mg/kg
Cadmium	0.86	0.50		mg/kg
Chromium (Total)	2.29	0.25		mg/kg
Cobalt	ND	0.25		mg/kg
Copper	22.8	0.25		mg/kg
Lead	51.5	0.50		mg/kg
Molybdenum	ND	0.25		mg/kg
Nickel	1.96	0.25		mg/kg
Selenium	0.81	0.75		mg/kg
Silver	ND	0.50		mg/kg
Thallium	ND	0.75		mg/kg
Vanadium	0.85	0.25		mg/kg
Zinc	91.3	1.00		mg/kg

ANALYTICAL REPORT
EPA 6010B CAC, Title 22 Metals

Client Name:	Woodward-Clyde Consultants
Project ID:	POLB-Naval Shipyard
Work Order Number:	99-01-0064
QC Batch ID:	990111lcs1
Matrix:	Solid
Preparation:	Total Digestion
Method:	EPA 6010B
	Date Collected: 01/06/99
	Date Received: 01/06/99
	Date Prepared: 01/11/99
	Date Analyzed: 01/12/99

Client Sample Number: WB-2
Lab Sample Number: 99-01-0064-14

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Antimony	2.17	0.75		mg/kg
Arsenic	1.09	0.75	3	mg/kg
Barium	7.21	0.50		mg/kg
Beryllium	ND	0.25		mg/kg
Cadmium	ND	0.50		mg/kg
Chromium (Total)	0.72	0.25	3	mg/kg
Cobalt	ND	0.25		mg/kg
Copper	4.54	0.25	3	mg/kg
Lead	10.7	0.50	3	mg/kg
Molybdenum	ND	0.25		mg/kg
Nickel	0.36	0.25	3	mg/kg
Selenium	0.96	0.75		mg/kg
Silver	1.01	0.50	3	mg/kg
Thallium	ND	0.75		mg/kg
Vanadium	ND	0.25		mg/kg
Zinc	23.8	1.00		mg/kg



ANALYTICAL REPORT
EPA 6010B CAC, Title 22 Metals

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 990111lcs1
Matrix: Solid
Preparation: Total Digestion
Method: EPA 6010B

Date Collected: N/A
Date Received: N/A
Date Prepared: 01/11/99
Date Analyzed: 01/12/99

Client Sample Number: Method Blank
Lab Sample Number: 097-01-002-832

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Antimony	ND	0.75		mg/kg
Arsenic	ND	0.75		mg/kg
Barium	ND	0.50		mg/kg
Beryllium	ND	0.25		mg/kg
Cadmium	ND	0.50		mg/kg
Chromium (Total)	ND	0.25		mg/kg
Cobalt	ND	0.25		mg/kg
Copper	ND	0.25		mg/kg
Lead	ND	0.50		mg/kg
Molybdenum	ND	0.25		mg/kg
Nickel	ND	0.25		mg/kg
Selenium	ND	0.75		mg/kg
Silver	ND	0.50		mg/kg
Thallium	ND	0.75		mg/kg
Vanadium	ND	0.25		mg/kg
Zinc	ND	1.00		mg/kg



ANALYTICAL REPORT
EPA 8015M TPH-Gasoline Standard

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 99011302sa
Matrix: Solid
Preparation: Ext. + EPA 5030
Method: EPA 8015M

Date Collected: 01/06/99
Date Received: 01/06/99
Date Prepared: 01/13/99
Date Analyzed: 01/13/99

Client Sample Number: WB-1
Lab Sample Number: 99-01-0064-13

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
TPH for Gasoline	1430	50	D	mg/kg

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
1,4-Bromofluorobenzene	104	45-141	



ANALYTICAL REPORT
EPA 8015M TPH-Gasoline Standard

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 99011201sa Date Collected: 01/06/99
Matrix: Solid Date Received: 01/06/99
Preparation: EPA 5030A Date Prepared: N/A
Method: EPA 8015M Date Analyzed: 01/13/99

Client Sample Number: WB-2
Lab Sample Number: 99-01-0064-14

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
TPH for Gasoline	9.9	0.5		mg/kg

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
1,4-Bromofluorobenzene	13	45-141	2

ANALYTICAL REPORT
EPA 8015M TPH-Gasoline Standard

Client Name:	Woodward-Clyde Consultants
Project ID:	POLB-Naval Shipyard
Work Order Number:	99-01-0064
QC Batch ID:	99011201sa
Matrix:	Solid
Preparation:	EPA 5030A
Method:	EPA 8015M
	Date Collected: N/A
	Date Received: N/A
	Date Prepared: N/A
	Date Analyzed: 01/12/99

Client Sample Number: Method Blank
Lab Sample Number: 098-03-008-159

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
TPH for Gasoline	ND	0.5		mg/kg
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
1,4-Bromofluorobenzene	111	45-141		

ANALYTICAL REPORT
EPA 8015M TPH-Gasoline Standard

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 99011302sa
Matrix: Solid
Preparation: Ext. + EPA 5030
Method: EPA 8015M

Date Collected: N/A
Date Received: N/A
Date Prepared: 01/13/99
Date Analyzed: 01/13/99

Client Sample Number: Method Blank
Lab Sample Number: 098-03-008-162

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
TPH for Gasoline	ND	5		mg/kg

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
1,4-Bromofluorobenzene	101	45-141	

**ANALYTICAL REPORT
EPA 8082 PCBs**

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	9901081	Date Collected:	01/06/99
Matrix:	Solid	Date Received:	01/06/99
Preparation:	EPA 3550A	Date Prepared:	01/08/99
Method:	EPA 8082	Date Analyzed:	01/11/99

Client Sample Number: WB-1
Lab Sample Number: 99-01-0064-13

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Aroclor-1016	ND	500		ug/kg
Aroclor-1221	ND	500		ug/kg
Aroclor-1232	ND	500		ug/kg
Aroclor-1242	ND	500		ug/kg
Aroclor-1248	ND	500		ug/kg
Aroclor-1254	ND	500		ug/kg
Aroclor-1260	8680	500	D	ug/kg
Aroclor-1262	ND	500		ug/kg

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Decachlorobiphenyl	129	50-130	
2,4,5,6-Tetrachloro-m-Xylene	86	50-130	

ANALYTICAL REPORT
EPA 8082 PCBs

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 9901081 Date Collected: 01/06/99
Matrix: Solid Date Received: 01/06/99
Preparation: EPA 3550A Date Prepared: 01/08/99
Method: EPA 8082 Date Analyzed: 01/11/99

Client Sample Number: WB-2
Lab Sample Number: 99-01-0064-14

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Aroclor-1016	ND	500		ug/kg
Aroclor-1221	ND	500		ug/kg
Aroclor-1232	ND	500		ug/kg
Aroclor-1242	ND	500		ug/kg
Aroclor-1248	ND	500		ug/kg
Aroclor-1254	ND	500		ug/kg
Aroclor-1260	ND	500		ug/kg
Aroclor-1262	ND	500		ug/kg

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Decachlorobiphenyl	86	50-130	
2,4,5,6-Tetrachloro-m-Xylene	44	50-130	2

ANALYTICAL REPORT
EPA 8082 PCBs

Client Name:	Woodward-Clyde Consultants
Project ID:	POLB-Naval Shipyard
Work Order Number:	99-01-0064
QC Batch ID:	9901081
Matrix:	Solid
Preparation:	EPA 3550A
Method:	EPA 8082
	Date Collected: N/A
	Date Received: N/A
	Date Prepared: 01/08/99
	Date Analyzed: 01/08/99

Client Sample Number: Method Blank
Lab Sample Number: 095-01-014-1,134

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Aroclor-1016	ND	50		ug/kg
Aroclor-1221	ND	50		ug/kg
Aroclor-1232	ND	50		ug/kg
Aroclor-1242	ND	50		ug/kg
Aroclor-1248	ND	50		ug/kg
Aroclor-1254	ND	50		ug/kg
Aroclor-1260	ND	50		ug/kg
Aroclor-1262	ND	50		ug/kg

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Decachlorobiphenyl	66	50-130	
2,4,5,6-Tetrachloro-m-Xylene	76	50-130	

ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	990111AE	Date Collected:	01/06/99
Matrix:	Solid	Date Received:	01/06/99
Preparation:	N/A	Date Prepared:	N/A
Method:	EPA 8260B	Date Analyzed:	01/11/99

Client Sample Number: WB-1
Lab Sample Number: 99-01-0064-13

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Acetone	57200	10000	D	ug/kg
Benzene	ND	100		ug/kg
Bromobenzene	ND	100		ug/kg
Bromochloromethane	ND	100		ug/kg
Bromodichloromethane	ND	100		ug/kg
Bromoform	ND	100		ug/kg
Bromomethane	ND	100		ug/kg
2-Butanone	ND	1000		ug/kg
n-Butylbenzene	ND	100		ug/kg
sec-Butylbenzene	ND	100		ug/kg
tert-Butylbenzene	ND	100		ug/kg
Carbon Disulfide	ND	1000		ug/kg
Carbon Tetrachloride	ND	100		ug/kg
Chlorobenzene	ND	100		ug/kg
Chloroethane	ND	100		ug/kg
Chloroform	ND	100		ug/kg
Chloromethane	ND	100		ug/kg
2-Chlorotoluene	ND	100		ug/kg
4-Chlorotoluene	ND	100		ug/kg
Dibromochloromethane	ND	100		ug/kg
1,2-Dibromo-3-Chloropropane	ND	100		ug/kg
1,2-Dibromoethane	ND	100		ug/kg
Dibromomethane	ND	100		ug/kg
1,2-Dichlorobenzene	ND	100		ug/kg
1,3-Dichlorobenzene	ND	100		ug/kg
1,4-Dichlorobenzene	ND	100		ug/kg
Dichlorodifluoromethane	ND	100		ug/kg
1,1-Dichloroethane	ND	100		ug/kg
1,2-Dichloroethane	ND	100		ug/kg
1,1-Dichloroethene	ND	100		ug/kg
c-1,2-Dichloroethene	ND	100		ug/kg
t-1,2-Dichloroethene	ND	100		ug/kg
1,2-Dichloropropane	ND	100		ug/kg

ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	990111AE	Date Collected:	01/06/99
Matrix:	Solid	Date Received:	01/06/99
Preparation:	N/A	Date Prepared:	N/A
Method:	EPA 8260B	Date Analyzed:	01/11/99

Client Sample Number: WB-1
Lab Sample Number: 99-01-0064-13

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
1,3-Dichloropropane	ND	100		ug/kg
2,2-Dichloropropane	ND	100		ug/kg
1,1-Dichloropropene	ND	100		ug/kg
c-1,3-Dichloropropene	ND	100		ug/kg
t-1,3-Dichloropropene	ND	100		ug/kg
Ethylbenzene	ND	100		ug/kg
2-Hexanone	ND	1000		ug/kg
Isopropylbenzene	ND	100		ug/kg
p-Isopropyltoluene	160	100		ug/kg
Methylene Chloride	ND	1000		ug/kg
4-Methyl-2-Pentanone	1030	1000		ug/kg
Naphthalene	4940	1000		ug/kg
n-Propylbenzene	ND	100		ug/kg
Styrene	ND	100		ug/kg
1,1,1,2-Tetrachloroethane	ND	100		ug/kg
1,1,2,2-Tetrachloroethane	ND	100		ug/kg
Tetrachloroethene	ND	100		ug/kg
Toluene	200	100		ug/kg
1,2,3-Trichlorobenzene	ND	200		ug/kg
1,2,4-Trichlorobenzene	ND	100		ug/kg
1,1,1-Trichloroethane	ND	100		ug/kg
1,1,2-Trichloroethane	ND	100		ug/kg
Trichloroethene	ND	100		ug/kg
Trichlorofluoromethane	ND	1000		ug/kg
1,2,3-Trichloropropane	ND	100		ug/kg
1,2,4-Trimethylbenzene	ND	100		ug/kg
1,3,5-Trimethylbenzene	ND	100		ug/kg
Vinyl Acetate	ND	1000		ug/kg
Vinyl Chloride	ND	100		ug/kg
p/m-Xylene	ND	100		ug/kg
o-Xylene	ND	100		ug/kg
Methyl-tert-Butyl Ether	ND	100		ug/kg

ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	990111AE	Date Collected:	01/06/99
Matrix:	Solid	Date Received:	01/06/99
Preparation:	N/A	Date Prepared:	N/A
Method:	EPA 8260B	Date Analyzed:	01/11/99

Client Sample Number: WB-1
Lab Sample Number: 99-01-0064-13

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Dibromofluoromethane	101	80-120	
Toluene-d8	102	81-117	
1,4-Bromofluorobenzene	95	74-121	

ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	990111AE	Date Collected:	01/06/99
Matrix:	Solid	Date Received:	01/06/99
Preparation:	N/A	Date Prepared:	N/A
Method:	EPA 8260B	Date Analyzed:	01/11/99

Client Sample Number: WB-2
Lab Sample Number: 99-01-0064-14

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Acetone	ND	1000		ug/kg
Benzene	ND	100		ug/kg
Bromobenzene	ND	100		ug/kg
Bromoform	ND	100		ug/kg
Bromomethane	ND	100		ug/kg
2-Butanone	ND	1000		ug/kg
n-Butylbenzene	ND	100		ug/kg
sec-Butylbenzene	ND	100		ug/kg
tert-Butylbenzene	ND	100		ug/kg
Carbon Disulfide	ND	1000		ug/kg
Carbon Tetrachloride	ND	100		ug/kg
Chlorobenzene	ND	100		ug/kg
Chloroethane	ND	100		ug/kg
Chloroform	ND	100		ug/kg
Chloromethane	ND	100		ug/kg
2-Chlorotoluene	ND	100		ug/kg
4-Chlorotoluene	ND	100		ug/kg
Dibromochloromethane	ND	100		ug/kg
1,2-Dibromo-3-Chloropropane	ND	100		ug/kg
1,2-Dibromoethane	ND	100		ug/kg
Dibromomethane	ND	100		ug/kg
1,2-Dichlorobenzene	ND	100		ug/kg
1,3-Dichlorobenzene	ND	100		ug/kg
1,4-Dichlorobenzene	ND	100		ug/kg
Dichlorodifluoromethane	ND	100		ug/kg
1,1-Dichloroethane	ND	100		ug/kg
1,2-Dichloroethane	ND	100		ug/kg
1,1-Dichloroethene	ND	100		ug/kg
c-1,2-Dichloroethene	ND	100		ug/kg
t-1,2-Dichloroethene	ND	100		ug/kg
1,2-Dichloropropane	ND	100		ug/kg

ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	990111AE	Date Collected:	01/06/99
Matrix:	Solid	Date Received:	01/06/99
Preparation:	N/A	Date Prepared:	N/A
Method:	EPA 8260B	Date Analyzed:	01/11/99

Client Sample Number: WB-2
Lab Sample Number: 99-01-0064-14

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
1,3-Dichloropropane	ND	100		ug/kg
2,2-Dichloropropane	ND	100		ug/kg
1,1-Dichloropropene	ND	100		ug/kg
c-1,3-Dichloropropene	ND	100		ug/kg
t-1,3-Dichloropropene	ND	100		ug/kg
Ethylbenzene	ND	100		ug/kg
2-Hexanone	ND	1000		ug/kg
Isopropylbenzene	ND	100		ug/kg
p-Isopropyltoluene	ND	100		ug/kg
Methylene Chloride	ND	1000		ug/kg
4-Methyl-2-Pentanone	ND	1000		ug/kg
Naphthalene	2740	1000		ug/kg
n-Propylbenzene	ND	100		ug/kg
Styrene	ND	100		ug/kg
1,1,1,2-Tetrachloroethane	ND	100		ug/kg
1,1,2,2-Tetrachloroethane	ND	100		ug/kg
Tetrachloroethene	ND	100		ug/kg
Toluene	ND	100		ug/kg
1,2,3-Trichlorobenzene	ND	200		ug/kg
1,2,4-Trichlorobenzene	ND	100		ug/kg
1,1,1-Trichloroethane	ND	100		ug/kg
1,1,2-Trichloroethane	ND	100		ug/kg
Trichloroethene	ND	100		ug/kg
Trichlorofluoromethane	ND	1000		ug/kg
1,2,3-Trichloropropane	ND	100		ug/kg
1,2,4-Trimethylbenzene	ND	100		ug/kg
1,3,5-Trimethylbenzene	ND	100		ug/kg
Vinyl Acetate	ND	1000		ug/kg
Vinyl Chloride	ND	100		ug/kg
p/m-Xylene	ND	100		ug/kg
o-Xylene	ND	100		ug/kg
Methyl-tert-Butyl Ether	ND	100		ug/kg



ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 990111AE
Matrix: Solid
Preparation: N/A
Method: EPA 8260B

Date Collected: 01/06/99
Date Received: 01/06/99
Date Prepared: N/A
Date Analyzed: 01/11/99

Client Sample Number: WB-2
Lab Sample Number: 99-01-0064-14

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Dibromofluoromethane	101	80-120	
Toluene-d8	101	81-117	
1,4-Bromofluorobenzene	100	74-121	

ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	990111AE	Date Collected:	N/A
Matrix:	Solid	Date Received:	N/A
Preparation:	N/A	Date Prepared:	N/A
Method:	EPA 8260B	Date Analyzed:	01/11/99

Client Sample Number: Method Blank
Lab Sample Number: 095-01-025-1,084

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Acetone	ND	500		ug/kg
Benzene	ND	50		ug/kg
Bromobenzene	ND	50		ug/kg
Bromochloromethane	ND	50		ug/kg
Bromodichloromethane	ND	50		ug/kg
Bromoform	ND	50		ug/kg
Bromomethane	ND	50		ug/kg
2-Butanone	ND	500		ug/kg
n-Butylbenzene	ND	50		ug/kg
sec-Butylbenzene	ND	50		ug/kg
tert-Butylbenzene	ND	50		ug/kg
Carbon Disulfide	ND	500		ug/kg
Carbon Tetrachloride	ND	50		ug/kg
Chlorobenzene	ND	50		ug/kg
Chloroethane	ND	50		ug/kg
Chloroform	ND	50		ug/kg
Chloromethane	ND	50		ug/kg
2-Chlorotoluene	ND	50		ug/kg
4-Chlorotoluene	ND	50		ug/kg
Dibromochloromethane	ND	50		ug/kg
1,2-Dibromo-3-Chloropropane	ND	50		ug/kg
1,2-Dibromoethane	ND	50		ug/kg
Dibromomethane	ND	50		ug/kg
1,2-Dichlorobenzene	ND	50		ug/kg
1,3-Dichlorobenzene	ND	50		ug/kg
1,4-Dichlorobenzene	ND	50		ug/kg
Dichlorodifluoromethane	ND	50		ug/kg
1,1-Dichloroethane	ND	50		ug/kg
1,2-Dichloroethane	ND	50		ug/kg
1,1-Dichloroethene	ND	50		ug/kg
c-1,2-Dichloroethene	ND	50		ug/kg
t-1,2-Dichloroethene	ND	50		ug/kg
1,2-Dichloropropane	ND	50		ug/kg



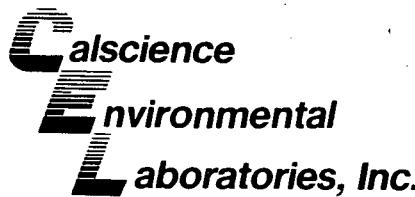
ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 990111AE
Matrix: Solid
Preparation: N/A
Method: EPA 8260B

Date Collected: N/A
Date Received: N/A
Date Prepared: N/A
Date Analyzed: 01/11/99

Client Sample Number: Method Blank
Lab Sample Number: 095-01-025-1,084

Parameter	Result	RL	Qualifiers	Units
1,3-Dichloropropane	ND	50		ug/kg
2,2-Dichloropropane	ND	50		ug/kg
1,1-Dichloropropene	ND	50		ug/kg
c-1,3-Dichloropropene	ND	50		ug/kg
t-1,3-Dichloropropene	ND	50		ug/kg
Ethylbenzene	ND	50		ug/kg
2-Hexanone	ND	500		ug/kg
Isopropylbenzene	ND	50		ug/kg
p-Isopropyltoluene	ND	50		ug/kg
Methylene Chloride	ND	500		ug/kg
4-Methyl-2-Pentanone	ND	500		ug/kg
Naphthalene	ND	500		ug/kg
n-Propylbenzene	ND	50		ug/kg
Styrene	ND	50		ug/kg
1,1,1,2-Tetrachloroethane	ND	50		ug/kg
1,1,2,2-Tetrachloroethane	ND	50		ug/kg
Tetrachloroethene	ND	50		ug/kg
Toluene	ND	50		ug/kg
1,2,3-Trichlorobenzene	ND	100		ug/kg
1,2,4-Trichlorobenzene	ND	50		ug/kg
1,1,1-Trichloroethane	ND	50		ug/kg
1,1,2-Trichloroethane	ND	50		ug/kg
Trichloroethene	ND	50		ug/kg
Trichlorofluoromethane	ND	500		ug/kg
1,2,3-Trichloropropane	ND	50		ug/kg
1,2,4-Trimethylbenzene	ND	50		ug/kg
1,3,5-Trimethylbenzene	ND	50		ug/kg
Vinyl Acetate	ND	500		ug/kg
Vinyl Chloride	ND	50		ug/kg
p/m-Xylene	ND	50		ug/kg
o-Xylene	ND	50		ug/kg
Methyl-tert-Butyl Ether	ND	50		ug/kg



ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 990111AE Date Collected: N/A
Matrix: Solid Date Received: N/A
Preparation: N/A Date Prepared: N/A
Method: EPA 8260B Date Analyzed: 01/11/99

Client Sample Number: Method Blank
Lab Sample Number: 095-01-025-1,084

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Dibromofluoromethane	100	80-120	
Toluene-d8	101	81-117	
1,4-Bromofluorobenzene	100	74-121	

ANALYTICAL REPORT
EPA 8270C Semi-Volatile Organics

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	9901087	Date Collected:	01/06/99
Matrix:	Solid	Date Received:	01/06/99
Preparation:	EPA 3540B	Date Prepared:	01/08/99
Method:	EPA 8270C	Date Analyzed:	01/15/99

Client Sample Number: WB-1
Lab Sample Number: 99-01-0064-13

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
N-Nitrosodimethylamine	ND	50		mg/kg
Aniline	ND	50		mg/kg
Phenol	ND	50		mg/kg
Bis(2-Chloroethyl) Ether	ND	250		mg/kg
2-Chlorophenol	ND	50		mg/kg
1,3-Dichlorobenzene	ND	50		mg/kg
1,4-Dichlorobenzene	ND	50		mg/kg
Benzyl Alcohol	ND	50		mg/kg
1,2-Dichlorobenzene	ND	50		mg/kg
2-Methylphenol	ND	50		mg/kg
Bis(2-Chloroisopropyl) Ether	ND	50		mg/kg
4-Methylphenol	ND	50		mg/kg
N-Nitroso-di-n-propylamine	ND	50		mg/kg
Hexachloroethane	ND	50		mg/kg
Nitrobenzene	ND	250		mg/kg
Isophorone	ND	50		mg/kg
2-Nitrophenol	ND	50		mg/kg
2,4-Dimethylphenol	ND	50		mg/kg
Benzoic Acid	ND	250		mg/kg
Bis(2-Chloroethoxy) Methane	ND	50		mg/kg
2,4-Dichlorophenol	ND	50		mg/kg
1,2,4-Trichlorobenzene	ND	50		mg/kg
Naphthalene	1820	50	E	mg/kg
4-Chloroaniline	ND	50		mg/kg
Hexachloro-1,3-Butadiene	ND	50		mg/kg
4-Chloro-3-Methylphenol	ND	50		mg/kg
2-Methylnaphthalene	310	50		mg/kg
1-Methylnaphthalene	150	50		mg/kg
Hexachlorocyclopentadiene	ND	50		mg/kg
2,4,5-Trichlorophenol	ND	50		mg/kg
2-Chloronaphthalene	ND	50		mg/kg
2-Nitroaniline	ND	50		mg/kg
Dimethyl Phthalate	ND	50		mg/kg

ANALYTICAL REPORT
EPA 8270C Semi-Volatile Organics

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	9901087	Date Collected:	01/06/99
Matrix:	Solid	Date Received:	01/06/99
Preparation:	EPA 3540B	Date Prepared:	01/08/99
Method:	EPA 8270C	Date Analyzed:	01/15/99

Client Sample Number: WB-1
Lab Sample Number: 99-01-0064-13

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Acenaphthylene	ND	50		mg/kg
3-Nitroaniline	ND	50		mg/kg
Acenaphthene	490	50		mg/kg
2,4-Dinitrophenol	ND	250		mg/kg
4-Nitrophenol	ND	50		mg/kg
Dibenzofuran	310	50		mg/kg
2,4-Dinitrotoluene	ND	50		mg/kg
2,6-Dinitrotoluene	ND	50		mg/kg
Diethyl Phthalate	ND	50		mg/kg
4-Chlorophenyl-Phenyl Ether	ND	50		mg/kg
Fluorene	300	50		mg/kg
4-Nitroaniline	ND	50		mg/kg
Azobenzene	ND	50		mg/kg
4,6-Dinitro-2-Methylphenol	ND	250		mg/kg
N-Nitrosodiphenylamine	ND	50		mg/kg
2,4,6-Trichlorophenol	ND	50		mg/kg
4-Bromophenyl-Phenyl Ether	ND	50		mg/kg
Hexachlorobenzene	ND	50		mg/kg
Pentachlorophenol	ND	250		mg/kg
Phenanthrene	2430	50	E	mg/kg
Anthracene	590	50		mg/kg
Di-n-Butyl Phthalate	ND	50		mg/kg
Fluoranthene	2070	50	E	mg/kg
Benzidine	ND	250		mg/kg
Pyrene	500	50		mg/kg
Pyridine	ND	50		mg/kg
Butyl Benzyl Phthalate	ND	50		mg/kg
3,3'-Dichlorobenzidine	ND	50		mg/kg
Benzo (a) Anthracene	510	50		mg/kg
Bis(2-Ethylhexyl) Phthalate	ND	50		mg/kg
Chrysene	460	50		mg/kg
Di-n-Octyl Phthalate	ND	50		mg/kg
Benzo (b) Fluoranthene	560	50		mg/kg

ANALYTICAL REPORT
EPA 8270C Semi-Volatile Organics

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	9901087	Date Collected:	01/06/99
Matrix:	Solid	Date Received:	01/06/99
Preparation:	EPA 3540B	Date Prepared:	01/08/99
Method:	EPA 8270C	Date Analyzed:	01/15/99

Client Sample Number: WB-1
Lab Sample Number: 99-01-0064-13

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Benzo (k) Fluoranthene	480	50		mg/kg
Benzo (a) Pyrene	560	50		mg/kg
Indeno (1,2,3-c,d) Pyrene	170	50		mg/kg
Dibenz (a,h) Anthracene	80	50		mg/kg
Benzo (g,h,i) Perylene	150	50		mg/kg

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
2-Fluorophenol	67	25-121	
Phenol-d6	76	24-113	
Nitrobenzene-d5	64	23-120	
2-Fluorobiphenyl	0	30-115	1
2,4,6-Tribromophenol	0	19-122	1
p-Terphenyl-d14	0	18-137	1

ANALYTICAL REPORT
EPA 8270C Semi-Volatile Organics

Client Name: Woodward-Clyde Consultants
 Project ID: POLB-Naval Shipyard
 Work Order Number: 99-01-0064
 QC Batch ID: 9901087 Date Collected: 01/06/99
 Matrix: Solid Date Received: 01/06/99
 Preparation: EPA 3540B Date Prepared: 01/08/99
 Method: EPA 8270C Date Analyzed: 01/15/99

Client Sample Number: WB-2
 Lab Sample Number: 99-01-0064-14

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
N-Nitrosodimethylamine	ND	50		mg/kg
Aniline	ND	50		mg/kg
Phenol	110	50		mg/kg
Bis(2-Chloroethyl) Ether	ND	250		mg/kg
2-Chlorophenol	ND	50		mg/kg
1,3-Dichlorobenzene	ND	50		mg/kg
1,4-Dichlorobenzene	ND	50		mg/kg
Benzyl Alcohol	ND	50		mg/kg
1,2-Dichlorobenzene	ND	50		mg/kg
2-Methylphenol	ND	50		mg/kg
Bis(2-Chloroisopropyl) Ether	ND	50		mg/kg
4-Methylphenol	120	50		mg/kg
N-Nitroso-di-n-propylamine	ND	50		mg/kg
Hexachloroethane	ND	50		mg/kg
Nitrobenzene	ND	250		mg/kg
Isophorone	ND	50		mg/kg
2-Nitrophenol	ND	50		mg/kg
2,4-Dimethylphenol	60	50		mg/kg
Benzoic Acid	ND	250		mg/kg
Bis(2-Chloroethoxy) Methane	ND	50		mg/kg
2,4-Dichlorophenol	ND	50		mg/kg
1,2,4-Trichlorobenzene	ND	50		mg/kg
Naphthalene	490	50		mg/kg
4-Chloroaniline	ND	50		mg/kg
Hexachloro-1,3-Butadiene	ND	50		mg/kg
4-Chloro-3-Methylphenol	ND	50		mg/kg
2-Methylnaphthalene	250	50		mg/kg
1-Methylnaphthalene	140	50		mg/kg
Hexachlorocyclopentadiene	ND	50		mg/kg
2,4,5-Trichlorophenol	ND	50		mg/kg
2-Chloronaphthalene	ND	50		mg/kg
2-Nitroaniline	ND	50		mg/kg
Dimethyl Phthalate	ND	50		mg/kg

ANALYTICAL REPORT
EPA 8270C Semi-Volatile Organics

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	9901087	Date Collected:	01/06/99
Matrix:	Solid	Date Received:	01/06/99
Preparation:	EPA 3540B	Date Prepared:	01/08/99
Method:	EPA 8270C	Date Analyzed:	01/15/99

Client Sample Number: WB-2
Lab Sample Number: 99-01-0064-14

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Acenaphthylene	130	50		mg/kg
3-Nitroaniline	ND	50		mg/kg
Acenaphthene	260	50		mg/kg
2,4-Dinitrophenol	ND	250		mg/kg
4-Nitrophenol	ND	50		mg/kg
Dibenzofuran	730	50		mg/kg
2,4-Dinitrotoluene	ND	50		mg/kg
2,6-Dinitrotoluene	ND	50		mg/kg
Diethyl Phthalate	ND	50		mg/kg
4-Chlorophenyl-Phenyl Ether	ND	50		mg/kg
Fluorene	240	50		mg/kg
4-Nitroaniline	ND	50		mg/kg
Azobenzene	ND	50		mg/kg
4,6-Dinitro-2-Methylphenol	ND	250		mg/kg
N-Nitrosodiphenylamine	ND	50		mg/kg
2,4,6-Trichlorophenol	ND	50		mg/kg
4-Bromophenyl-Phenyl Ether	ND	50		mg/kg
Hexachlorobenzene	ND	50		mg/kg
Pentachlorophenol	ND	250		mg/kg
Phenanthrene	2970	50	E	mg/kg
Anthracene	820	50		mg/kg
Di-n-Butyl Phthalate	ND	50		mg/kg
Fluoranthene	2120	50	E	mg/kg
Benzidine	ND	250		mg/kg
Pyrene	2430	50	E	mg/kg
Pyridine	ND	50		mg/kg
Butyl Benzyl Phthalate	ND	50		mg/kg
3,3'-Dichlorobenzidine	ND	50		mg/kg
Benzo (a) Anthracene	990	50		mg/kg
Bis(2-Ethylhexyl) Phthalate	ND	50		mg/kg
Chrysene	1180	50		mg/kg
Di-n-Octyl Phthalate	ND	50		mg/kg
Benzo (b) Fluoranthene	480	50		mg/kg

ANALYTICAL REPORT
EPA 8270C Semi-Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 9901087 Date Collected: 01/06/99
Matrix: Solid Date Received: 01/06/99
Preparation: EPA 3540B Date Prepared: 01/08/99
Method: EPA 8270C Date Analyzed: 01/15/99

Client Sample Number: WB-2
Lab Sample Number: 99-01-0064-14

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Benzo (k) Fluoranthene	600	50		mg/kg
Benzo (a) Pyrene	600	50		mg/kg
Indeno (1,2,3-c,d) Pyrene	210	50		mg/kg
Dibenz (a,h) Anthracene	100	50		mg/kg
Benzo (g,h,i) Perylene	200	50		mg/kg

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
2-Fluorophenol	64	25-121	
Phenol-d6	57	24-113	
Nitrobenzene-d5	0	23-120	1
2-Fluorobiphenyl	57	30-115	
2,4,6-Tribromophenol	0	19-122	1
p-Terphenyl-d14	66	18-137	

ANALYTICAL REPORT
EPA 8270C Semi-Volatile Organics

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	9901087	Date Collected:	N/A
Matrix:	Solid	Date Received:	N/A
Preparation:	EPA 3540B	Date Prepared:	01/08/99
Method:	EPA 8270C	Date Analyzed:	01/13/99

Client Sample Number: Method Blank
Lab Sample Number: 095-01-002-383

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
N-Nitrosodimethylamine	ND	1.0		mg/kg
Aniline	ND	1.0		mg/kg
Phenol	ND	1.0		mg/kg
Bis(2-Chloroethyl) Ether	ND	5.0		mg/kg
2-Chlorophenol	ND	1.0		mg/kg
1,3-Dichlorobenzene	ND	1.0		mg/kg
1,4-Dichlorobenzene	ND	1.0		mg/kg
Benzyl Alcohol	ND	1.0		mg/kg
1,2-Dichlorobenzene	ND	1.0		mg/kg
2-Methylphenol	ND	1.0		mg/kg
Bis(2-Chloroisopropyl) Ether	ND	1.0		mg/kg
4-Methylphenol	ND	1.0		mg/kg
N-Nitroso-di-n-propylamine	ND	1.0		mg/kg
Hexachloroethane	ND	1.0		mg/kg
Nitrobenzene	ND	5.0		mg/kg
Isophorone	ND	1.0		mg/kg
2-Nitrophenol	ND	1.0		mg/kg
2,4-Dimethylphenol	ND	1.0		mg/kg
Benzoic Acid	ND	5.0		mg/kg
Bis(2-Chloroethoxy) Methane	ND	1.0		mg/kg
2,4-Dichlorophenol	ND	1.0		mg/kg
1,2,4-Trichlorobenzene	ND	1.0		mg/kg
Naphthalene	ND	1.0		mg/kg
4-Chloroaniline	ND	1.0		mg/kg
Hexachloro-1,3-Butadiene	ND	1.0		mg/kg
4-Chloro-3-Methylphenol	ND	1.0		mg/kg
2-Methylnaphthalene	ND	1.0		mg/kg
1-Methylnaphthalene	ND	1.0		mg/kg
Hexachlorocyclopentadiene	ND	1.0		mg/kg
2,4,5-Trichlorophenol	ND	1.0		mg/kg
2-Chloronaphthalene	ND	1.0		mg/kg
2-Nitroaniline	ND	1.0		mg/kg
Dimethyl Phthalate	ND	1.0		mg/kg

ANALYTICAL REPORT
EPA 8270C Semi-Volatile Organics

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	9901087	Date Collected:	N/A
Matrix:	Solid	Date Received:	N/A
Preparation:	EPA 3540B	Date Prepared:	01/08/99
Method:	EPA 8270C	Date Analyzed:	01/13/99

Client Sample Number: Method Blank
Lab Sample Number: 095-01-002-383

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Acenaphthylene	ND	1.0		mg/kg
3-Nitroaniline	ND	1.0		mg/kg
Acenaphthene	ND	1.0		mg/kg
2,4-Dinitrophenol	ND	5.0		mg/kg
4-Nitrophenol	ND	1.0		mg/kg
Dibenzofuran	ND	1.0		mg/kg
2,4-Dinitrotoluene	ND	1.0		mg/kg
2,6-Dinitrotoluene	ND	1.0		mg/kg
Diethyl Phthalate	ND	1.0		mg/kg
4-Chlorophenyl-Phenyl Ether	ND	1.0		mg/kg
Fluorene	ND	1.0		mg/kg
4-Nitroaniline	ND	1.0		mg/kg
Azobenzene	ND	1.0		mg/kg
4,6-Dinitro-2-Methylphenol	ND	5.0		mg/kg
N-Nitrosodiphenylamine	ND	1.0		mg/kg
2,4,6-Trichlorophenol	ND	1.0		mg/kg
4-Bromophenyl-Phenyl Ether	ND	1.0		mg/kg
Hexachlorobenzene	ND	1.0		mg/kg
Pentachlorophenol	ND	5.0		mg/kg
Phenantrhene	ND	1.0		mg/kg
Anthracene	ND	1.0		mg/kg
Di-n-Butyl Phthalate	ND	1.0		mg/kg
Fluoranthene	ND	1.0		mg/kg
Benzidine	ND	5.0		mg/kg
Pyrene	ND	1.0		mg/kg
Pyridine	ND	1.0		mg/kg
Butyl Benzyl Phthalate	ND	1.0		mg/kg
3,3'-Dichlorobenzidine	ND	1.0		mg/kg
Benzo (a) Anthracene	ND	1.0		mg/kg
Bis(2-Ethylhexyl) Phthalate	ND	1.0		mg/kg
Chrysene	ND	1.0		mg/kg
Di-n-Octyl Phthalate	ND	1.0		mg/kg
Benzo (b) Fluoranthene	ND	1.0		mg/kg

ANALYTICAL REPORT
EPA 8270C Semi-Volatile Organics

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	9901087	Date Collected:	N/A
Matrix:	Solid	Date Received:	N/A
Preparation:	EPA 3540B	Date Prepared:	01/08/99
Method:	EPA 8270C	Date Analyzed:	01/13/99

Client Sample Number: Method Blank
Lab Sample Number: 095-01-002-383

Parameter	Result	RL	Qualifiers	Units
Benzo (k) Fluoranthene	ND	1.0		mg/kg
Benzo (a) Pyrene	ND	1.0		mg/kg
Indeno (1,2,3-c,d) Pyrene	ND	1.0		mg/kg
Dibenz (a,h) Anthracene	ND	1.0		mg/kg
Benzo (g,h,i) Perylene	ND	1.0		mg/kg

Surrogates:	REC (%)	Control Limits	Qualifiers
2-Fluorophenol	105	25-121	
Phenol-d6	85	24-113	
Nitrobenzene-d5	92	23-120	
2-Fluorobiphenyl	91	30-115	
2,4,6-Tribromophenol	65	19-122	
p-Terphenyl-d14	134	18-137	

QUALITY ASSURANCE SUMMARY

ICP / GF Metals (Solids)

Woodward-Clyde Consultants
Page 1 of 1

Work Order No.:

99-01-0064

Date Analyzed:

01/12/98

Matrix Spike/Matrix Spike Duplicate

Sample Spiked: WB-1

<u>Analyte</u>	<u>Method</u>	<u>MS%REC</u>	<u>MSD%REC</u>	<u>Control Limits</u>	<u>%RPD</u>	<u>Control Limits</u>
Mercury	EPA 7471A	112	115	50 - 130	3	0 - 20

Laboratory Control Sample

<u>Analyte</u>	<u>Method</u>	<u>Conc. Added</u>	<u>Conc. Rec.</u>	<u>%REC</u>	<u>Control Limits</u>
Mercury	EPA 7471A	0.0050	0.0052	103	50 - 130

QUALITY ASSURANCE SUMMARY

Method EPA 8015M - D (Solids)

Woodward-Clyde Consultants
Page 1 of 1

Work Order No.:
Date Analyzed:

99-01-0064
01/08/99

Matrix Spike/Matrix Spike Duplicate

Sample Spiked: 99-01-0147-1

<u>Analyte</u>	<u>MS%REC</u>	<u>MSD%REC</u>	<u>Control Limits</u>	<u>%RPD</u>	<u>Control Limits</u>
Total Petroleum Hydrocarbons	99	96	52 - 149	3	0 - 29

Laboratory Control Sample

<u>Analyte</u>	<u>Conc. Added</u>	<u>Conc. Rec.</u>	<u>%REC</u>	<u>Control Limits</u>
Total Petroleum Hydrocarbons	400	364	91	79 - 137



Quality Control - Spike/Spike Duplicate
EPA 8015M TPH-Gasoline Standard

MS/MSD Batch Number: 99011201ms
Matrix: Solid
Method: EPA 8015M

Instrument: GC 21
Date Extracted: N/A
Date Analyzed: 01/13/99

Spiked Sample ID: 99-01-0218-3

<u>Parameter</u>	<u>MS %REC</u>	<u>MSD %REC</u>	<u>%REC CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
TPH for Gasoline	77	77	52-149	0	0-29	

Quality Control - LCS/LCS Duplicate
EPA 8015M TPH-Gasoline Standard

LCS/LCSD Batch Number: 99011302sa
Matrix: Solid
Method: EPA 8015M

Instrument: GC 21
Date Extracted: 01/13/99
Date Analyzed: 01/13/99

<u>Parameter</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>%REC CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
TPH for Gasoline	83	83	79-137	0	0-29	

Quality Control - Spike/Spike Duplicate

EPA 6010B CAC, Title 22 Metals

MS/MSD Batch Number: 011199ms1
Matrix: Solid
Method: EPA 6010B

Instrument: ICP 2000
Date Extracted: 01/11/99
Date Analyzed: 01/12/99

Spiked Sample ID: WB-2

<u>Parameter</u>	<u>MS %REC</u>	<u>MSD %REC</u>	<u>%REC CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Antimony	67	68	50-115	1	0-20	
Arsenic	74	79	75-125	6	0-20	3
Barium	79	78	75-125	1	0-20	
Beryllium	71	73	75-125	2	0-20	3
Cadmium	73	75	75-125	3	0-20	3
Chromium (Total)	71	73	75-125	3	0-20	3
Cobalt	74	76	75-125	3	0-20	3
Copper	73	75	75-125	3	0-20	3
Lead	72	65	75-125	8	0-20	3
Molybdenum	71	74	75-125	4	0-20	3
Nickel	73	75	75-125	3	0-20	3
Selenium	75	80	75-125	6	0-20	
Silver	67	70	75-125	4	0-20	3
Thallium	71	73	75-125	3	0-20	3
Vanadium	73	75	75-125	4	0-20	3
Zinc	75	85	75-125	8	0-20	

Quality Control - Laboratory Control Sample

EPA 6010B CAC, Title 22 Metals

LCS Batch Number: 990111lcs1
Lab File ID: 990111-L
Matrix: Solid
Method: EPA 6010B

Instrument: ICP 2000
Date Analyzed: 01/12/99

LCS Sample Number: 097-01-002-832

<u>Parameter</u>	<u>Conc Added</u>	<u>Conc Recovered</u>	<u>%Rec</u>	<u>%Rec CL</u>	<u>Qualifiers</u>
Antimony	50	41.1	82	80-120	
Arsenic	50	49.9	100	80-120	
Barium	50	51.0	102	80-120	
Beryllium	50	47.2	94	80-120	
Cadmium	50	48.9	98	80-120	
Chromium (Total)	50	47.6	95	80-120	
Cobalt	50	49.5	99	80-120	
Copper	50	47.7	95	80-120	
Lead	50	47.7	95	80-120	
Molybdenum	50	48.3	97	80-120	
Nickel	50	49.0	98	80-120	
Selenium	50	47.2	94	80-120	
Silver	25	23.5	94	80-120	
Thallium	50	49.1	98	80-120	
Vanadium	50	47.9	96	80-120	
Zinc	50	48.5	97	80-120	



Quality Control - LCS/LCS Duplicate
EPA 8082 PCBs

LCS/LCSD Batch Number: 9901081
Matrix: Solid
Method: EPA 8082

Instrument: GC 10
Date Extracted: 01/08/99
Date Analyzed: 01/08/99

<u>Parameter</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>%REC CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Aroclor-1260	74	73	50-135	1	0-25	

Quality Control - Spike/Spike Duplicate

EPA 8260B Volatile Organics

MS/MSD Batch Number: 99010187-1
Matrix: Solid
Method: EPA 8260B

Instrument: GC/MS C
Date Extracted: N/A
Date Analyzed: 01/11/99

Spiked Sample ID: 99-01-0187-1

<u>Parameter</u>	<u>MS %REC</u>	<u>MSD %REC</u>	<u>%REC CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Benzene	99	99	72-127	0	0-25	
Carbon Tetrachloride	108	113	70-130	5	0-25	
Chlorobenzene	100	99	72-131	1	0-25	
1,2-Dichlorobenzene	96	98	70-130	2	0-25	
1,1-Dichloroethene	98	100	69-127	2	0-25	
Toluene	99	99	75-124	0	0-25	
Trichloroethene	100	100	60-137	0	0-25	
Vinyl Chloride	96	97	70-130	1	0-25	
Methyl-tert-Butyl Ether	99	100	80-120	1	0-25	

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Quality Control - Laboratory Control Sample

EPA 8260B Volatile Organics

LCS Batch Number: 990111AE
Lab File ID: 11JAN003
Matrix: Solid
Method: EPA 8260B

Instrument: GC/MS C
Date Analyzed: 01/11/99

LCS Sample Number: 095-01-025-1,084

<u>Parameter</u>	<u>Conc Added</u>	<u>Conc Recovered</u>	<u>%Rec</u>	<u>%Rec CL</u>	<u>Qualifiers</u>
Benzene	250	250	100	72-127	
Carbon Tetrachloride	250	263	105	70-130	
Chlorobenzene	250	251	100	72-131	
1,2-Dichlorobenzene	250	247	99	70-130	
1,1-Dichloroethene	250	246	99	69-127	
Toluene	250	252	101	75-124	
Trichloroethene	250	250	100	60-137	
Vinyl Chloride	250	240	96	79-118	
Methyl-tert-Butyl Ether	250	253	101	80-120	

Quality Control - LCS/LCS Duplicate
EPA 8270C Semi-Volatile Organics

LCS/LCSD Batch Number: 9901087
Matrix: Solid
Method: EPA 8270C

Instrument: GC/MS H
Date Extracted: 01/08/99
Date Analyzed: 01/13/99

<u>Parameter</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>%REC CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Phenol	83	82	20-120	1	0-42	
2-Chlorophenol	99	98	23-134	1	0-40	
1,4-Dichlorobenzene	87	86	20-124	1	0-28	
N-Nitroso-di-n-propylamine	66	63	0-230	4	0-38	
1,2,4-Trichlorobenzene	90	87	44-142	3	0-28	
Acenaphthene	91	87	47-145	4	0-31	
2,4-Dinitrotoluene	74	81	39-139	9	0-38	

Work Order Number: 99-01-0064

<u>Qualifier</u>	<u>Definition</u>
1	Surrogate spike compound was out of control due to required sample dilution, therefore, the sample data was reported without further clarification.
3	MS or MSD compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
E	Concentration exceeds the calibration range.
ND	Not detected at indicated reporting limit.

FAX TRANSMITTAL**URS Greiner Woodward Clyde**

2020 East First Street, Suite 400
Santa Ana, California 92705
tel 714/835-6888
fax 714/667-7147

DATE: **January 7, 1999**PAGES: **1**

TO: **MaryCarol** FROM: **Brian Jacobs**
-----@urscorp.com

FIRM: **CalScience** SUBJECT: **Port of LB Wood Block**

FAX NO: **714-984-7501** CC: **Samples dated 1/6/99**

MEMO:**Marycarol,****Please analyze WB-1 and WB-2 by:**

- Volatile organic compounds (VOCs) by EPA Method 8260,
- Semi-volatile organic compounds (SVOCs) by EPA Method 8270
- Polychlorinated biphenyls (PCBs) by EPA Method 8080
- California Code of Regulations (CCR), Title 22 Metals by EPA Method 6000/7000 Series,
- Cyanide by EPA Method 9010
- Total petroleum hydrocarbons (TPH-g) by EPA Method 8015 modified as gasoline
- Total (extractable) petroleum hydrocarbons (TPH-e) by carbon chain breakout by EPA Method 8015 modified.

Samples should be broken, pulverized, and ground as best as possible so that results reflect a homogenous sample of the block.

Also analyze a sample of the black, glassy material on the bottom side of the wood block of WB-2 for the full suite of tests outline above.

Does 8270 for SVOCs also include creosote and PAHs? If not need to identify the appropriate test method and analyze.

Please call me in the morning.

Thanks Brian

Calscience
Environmental
Laboratories, Inc.

January 19, 1999

Brian Jacobs
Woodward-Clyde Consultants
2020 East 1st Street, Suite 400
Santa Ana, CA 92705

Subject: **Calscience Work Order Number:** 99-01-0064
Client Reference: **POLB-Naval Shipyard**

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 01/06/99 and analyzed in accordance with the attached chain-of-custody.

The results in this analytical report are limited to the samples tested, and any reproduction of this report must be made in its entirety.

If you have any questions regarding this report, require sampling supplies or field services, or information on our analytical services, please feel free to call me at (714) 895-5494.

Sincerely,

Marycarol Valenzuela
Calscience Environmental
Laboratories, Inc.
Marycarol Valenzuela
Project Manager


William H. Christensen
Quality Assurance Manager

ANALYTICAL REPORT

Woodward-Clyde Consultants
2020 East 1st Street, Suite 400
Santa Ana, CA 92705

Date Sampled: 01/06/99
Date Received: 01/06/99
Date Extracted: 01/14/99
Date Analyzed: 01/16/99
Work Order No.: 99-01-0064
Method: EPA 7196A
Page 1 of 1

Attn: Brian Jacobs
RE: POLB-Naval Shipyard

All concentrations are reported in mg/L (ppm) using STLC an Extraction.

<u>Sample Number</u>	<u>Chromium VI Concentration</u>	<u>Reporting Limit</u>
P-11 Sump	ND	0.02
Method Blank	ND	0.02

ND denotes not detected at indicated reportable limit.

Each sample was received by CEL chilled, intact, and with chain-of-custody attached.

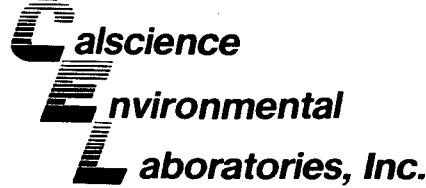


ANALYTICAL REPORT
EPA 6010B ICP Metals, STLC

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 990118lcs1 Date Collected: 01/06/99
Matrix: Aqueous Date Received: 01/06/99
Preparation: STLC Date Prepared: 01/15/99
Method: EPA 6010B Date Analyzed: 01/18/99

Client Sample Number: P-11 SUMP
Lab Sample Number: 99-01-0064-15

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Cadmium	0.81	0.05		mg/L
Lead	6.39	0.10		mg/L



ANALYTICAL REPORT
EPA 6010B ICP Metals, STLC

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 990118lcs1
Matrix: Aqueous
Preparation: STLC
Method: EPA 6010B

Date Collected: N/A
Date Received: N/A
Date Prepared: 01/15/99
Date Analyzed: 01/18/99

Client Sample Number: Method Blank
Lab Sample Number: 097-05-001-547

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Cadmium	ND	0.05		mg/L
Lead	ND	0.10		mg/L



QUALITY ASSURANCE SUMMARY

Method EPA 7196A

Woodward-Clyde Consultants
Page 1 of 1

Work Order No.: 99-01-0064
Date Analyzed: 01/16/99

Matrix Spike/Matrix Spike Duplicate

Sample Spiked: P-11 Sump

<u>Analyte</u>	<u>MS%REC</u>	<u>MSD%REC</u>	<u>Control Limits</u>	<u>%RPD</u>	<u>Control Limits</u>
Chromium VI	92	92	70 - 130	0	0 - 25

Laboratory Control Sample

<u>Analyte</u>	<u>Conc. Added</u>	<u>Conc. Rec.</u>	<u>%REC</u>	<u>Control Limits</u>
Chromium VI	0.50	0.52	104	80 - 120

Quality Control - Spike/Spike Duplicate
EPA 6010B ICP Metals, STLC

MS/MSD Batch Number: 011899ms1
Matrix: Aqueous
Method: EPA 6010B

Instrument: ICP 2000
Date Extracted: 01/15/99
Date Analyzed: 01/18/99

Spiked Sample ID: P-11 SUMP

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Cadmium	96	97	75-125	1	0-20	
Lead	99	98	75-125	1	0-20	

Calscience

**Environmental
Laboratories, Inc.**

Quality Control - Laboratory Control Sample

EPA 6010B ICP Metals, STLC

LCS Batch Number: 990118lcs1

Lab File ID: 99-01-18

Matrix: Aqueous

Method: EPA 6010B

Instrument: ICP 2000

Date Analyzed: 01/18/99

LCS Sample Number: 097-05-001-547

<u>Parameter</u>	<u>Conc Added</u>	<u>Conc Recovered</u>	<u>%Rec</u>	<u>%Rec CL</u>	<u>Qualifiers</u>
Cadmium	10	10.2	102	80-120	
Lead	10	10.1	101	80-120	

Work Order Number: 99-01-0064

<u>Qualifier</u>	<u>Definition</u>
ND	Not detected at indicated reporting limit.

**Calscience
Environmental
Laboratories, Inc.**

January 11, 1999

Brian Jacobs
Woodward-Clyde Consultants
2020 East 1st Street, Suite 400
Santa Ana, CA 92705

Subject: **Calscience Work Order Number:** 99-01-0064
Client Reference: POLB-Naval Shipyard

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 01/06/99 and analyzed in accordance with the attached chain-of-custody.

The results in this analytical report are limited to the samples tested, and any reproduction of this report must be made in its entirety.

If you have any questions regarding this report, require sampling supplies or field services, or information on our analytical services, please feel free to call me at (714) 895-5494.

Sincerely,


Marycarol Valenzuela
Calscience Environmental
Laboratories, Inc.
Marycarol Valenzuela
Project Manager


William H. Christensen
Quality Assurance Manager

Woodward-Clyde Consultants
2020 East 1st Street, Suite 400
Santa Ana, CA 92705

Date Sampled: 01/06/99
Date Received: 01/06/99
Date Digested: 01/07/99
Date Analyzed: 01/07/99
Work Order No.: 99-01-0064
Method: EPA 7471A
Page 1 of 1

Attn: Brian Jacobs
RE: POLB-Naval Shipyard

All concentrations are reported in mg/kg (ppm). Analyses for Mercury were conducted on a total digestion.

<u>Sample Number</u>	<u>Mercury Concentration</u>	<u>Reporting Limit</u>
P-11-3-5	ND	0.25
P-111-3-5	ND	0.25
W-A-5-7	ND	0.25
P-11 SUMP	0.40	0.25
Method Blank	ND	0.25

ND denotes not detected at indicated reportable limit.

Each sample was received by CEL chilled, intact, and with chain-of-custody attached.

ANALYTICAL REPORT

Woodward-Clyde Consultants
2020 East 1st Street, Suite 400
Santa Ana, CA 92705

Date Sampled: 01/06/99
Date Received: 01/06/99
Date Digested: 01/07/99
Date Analyzed: 01/07/99
Work Order No.: 99-01-0064
Method: EPA 7470A
Page 1 of 1

Attn: Brian Jacobs
RE: POLB-Naval Shipyard

All concentrations are reported in mg/L (ppm). Analyses for Mercury were conducted on a total digestion.

<u>Sample Number</u>	<u>Mercury Concentration</u>	<u>Reporting Limit</u>
P-11	ND	0.0005
P-111	ND	0.0005
W-A	ND	0.0005
P-11 SUMP	0.0039	0.0005
Method Blank	ND	0.0005

ND denotes not detected at indicated reportable limit.

Each sample was received by CEL chilled, intact, and with chain-of-custody attached.

ANALYTICAL REPORT

Woodward-Clyde Consultants
2020 East 1st Street, Suite 400
Santa Ana, CA 92705

Date Sampled: 01/06/99
Date Received: 01/06/99
Date Analyzed: 01/07/99

Attn: Brian Jacobs
RE: POLB-Naval Shipyard

Work Order No.: 99-01-0064
Method: EPA 413.1M
Page 1 of 1

All concentrations are reported in mg/kg (ppm).

<u>Sample Number</u>	<u>Oil and Grease Concentration</u>	<u>Reporting Limit</u>
P-11-3-5	ND	10
P-111-3-5	ND	10
W-A-5-7	ND	10
Method Blank	ND	10

ND denotes not detected at indicated reportable limit.

Each sample was received by CEL chilled, intact, and with chain-of-custody attached.

**Calscience
Environmental
Laboratories, Inc.**

ANALYTICAL REPORT

Woodward-Clyde Consultants
2020 East 1st Street, Suite 400
Santa Ana, CA 92705

Date Sampled: 01/06/99
Date Received: 01/06/99
Date Analyzed: 01/07/99

Attn: Brian Jacobs
RE: POLB-Naval Shipyard

Work Order No.: 99-01-0064
Method: EPA 413.1
Page 1 of 1

All concentrations are reported in mg/L (ppm).

<u>Sample Number</u>	<u>Oil and Grease Concentration</u>	<u>Reporting Limit</u>
P-11	4	1
P-111	8	1
W-A	12	1
Method Blank	ND	1

ND denotes not detected at indicated reportable limit.

Each sample was received by CEL chilled, intact, and with chain-of-custody attached.

Woodward-Clyde Consultants
2020 East 1st Street, Suite 400
Santa Ana, CA 92705

Date Sampled: 01/06/99
Date Received: 01/06/99
Date Analyzed: 01/07/99

Attn: Brian Jacobs
RE: POLB-Naval Shipyard

Work Order No.: 99-01-0064
Method: EPA 9045B
Page 1 of 1

All values are reported in pH units.

<u>Sample Number</u>	<u>pH</u>	<u>Reporting Limit</u>
W-A-5-7	6.07	0.01
P-11 SUMP	7.67	0.01

ND denotes not detected at indicated reportable limit.

Each sample was received by CEL chilled, intact, and with chain-of-custody attached.

**Calscience
Environmental
Laboratories, Inc.**

ANALYTICAL REPORT

Woodward-Clyde Consultants
2020 East 1st Street, Suite 400
Santa Ana, CA 92705

Date Sampled: 01/06/99
Date Received: 01/06/99
Date Analyzed: 01/07/99

Attn: Brian Jacobs
RE: POLB-Naval Shipyard

Work Order No.: 99-01-0064
Method: EPA 150.1
Page 1 of 1

All values are reported in pH units.

<u>Sample Number</u>	<u>pH</u>	<u>Reporting Limit</u>
W-A	7.80	0.01
P-11 SUMP	6.02	0.01

ND denotes not detected at indicated reportable limit.

Each sample was received by CEL chilled, intact, and with chain-of-custody attached.

Woodward-Clyde Consultants
2020 East 1st Street, Suite 400
Santa Ana, CA 92705

Date Sampled: 01/06/99
Date Received: 01/06/99
Date Analyzed: 01/07/99

Attn: Brian Jacobs
RE: POLB-Naval Shipyard

Work Order No.: 99-01-0064
Method: EPA 9010A
Page 1 of 1

All concentrations are reported in mg/kg (ppm).

<u>Sample Number</u>	<u>Total Cyanide Concentration</u>	<u>Reporting Limit</u>
W-A-5-7	ND	0.5
Method Blank	ND	0.5

ND denotes not detected at indicated reportable limit.

Each sample was received by CEL chilled, intact, and with chain-of-custody attached.

ANALYTICAL REPORT

Woodward-Clyde Consultants
2020 East 1st Street, Suite 400
Santa Ana, CA 92705

Date Sampled: 01/06/99
Date Received: 01/06/99
Date Analyzed: 01/07/99

Attn: Brian Jacobs
RE: POLB-Naval Shipyard

Work Order No.: 99-01-0064
Method: EPA 335.2
Page 1 of 1

All concentrations are reported in mg/L (ppm).

<u>Sample Number</u>	<u>Total Cyanide Concentration</u>	<u>Reporting Limit</u>
W-A	ND	0.05
Method Blank	ND	0.05

ND denotes not detected at indicated reportable limit.

Each sample was received by CEL chilled, intact, and with chain-of-custody attached.

Woodward-Clyde Consultants
2020 East 1st Street, Suite 400
Santa Ana, CA 92705

Date Sampled: 01/06/99
Date Received: 01/06/99
Date Extracted: 01/05/99
Date Analyzed: 01/07/99
Work Order No.: 99-01-0064
Method: EPA 8015M
Page 1 of 1

Attn: Brian Jacobs
RE: POLB-Naval Shipyard

All total petroleum hydrocarbon concentrations are reported in mg/kg (ppm) using diesel fuel as a standard.

<u>Sample Number</u>	<u>Concentration</u>	<u>Reporting Limit</u>
P-11-3-5	ND	5.0
P-111-3-5	ND	5.0
W-A-5-7	ND	5.0
Method Blank	ND	5.0

ND denotes not detected at indicated reportable limit.

Each sample was received by CEL chilled, intact, and with chain-of-custody attached.

ANALYTICAL REPORT

Woodward-Clyde Consultants
2020 East 1st Street, Suite 400
Santa Ana, CA 92705

Date Sampled: 01/06/99
Date Received: 01/06/99
Date Extracted: 01/05/99
Date Analyzed: 01/07/99
Work Order No.: 99-01-0064
Method: EPA 8015M
Page 1 of 1

Attn: Brian Jacobs
RE: POLB-Naval Shipyard

All total petroleum hydrocarbon concentrations are reported in $\mu\text{g}/\text{L}$ (ppb) using diesel fuel as a standard.

<u>Sample Number</u>	<u>Concentration</u>	<u>Reporting Limit</u>
P-11	ND	1000
P-111	ND	1000
W-A	ND	1000
Method Blank	ND	1000

ND denotes not detected at indicated reportable limit.

Each sample was received by CEL chilled, intact, and with chain-of-custody attached.

Woodward-Clyde Consultants
2020 East 1st Street, Suite 400
Santa Ana, CA 92705

Date Sampled: 01/06/99
Date Received: 01/06/99
Date Extracted: P/T
Date Analyzed: 01/06/99
Work Order No.: 99-01-0064
Method: EPA 8015M
Page 1 of 1

Attn: Brian Jacobs
RE: POLB-Naval Shipyard

All total petroleum hydrocarbon concentrations are reported in mg/kg (ppm) using gasoline as a standard.

<u>Sample Number</u>	<u>Concentration</u>	<u>Reporting Limit</u>
P-11-3-5	ND	0.5
P-111-3-5	ND	0.5
W-A-5-7	ND	0.5
Method Blank	ND	0.5

ND denotes not detected at indicated reportable limit.

Each sample was received by CEL chilled, intact, and with chain-of-custody attached.

ANALYTICAL REPORT

Woodward-Clyde Consultants
2020 East 1st Street, Suite 400
Santa Ana, CA 92705

Date Sampled: 01/06/99
Date Received: 01/06/99
Date Extracted: P/T
Date Analyzed: 01/07/99
Work Order No.: 99-01-0064
Method: EPA 8015M
Page 1 of 1

Attn: Brian Jacobs
RE: POLB-Naval Shipyard

All total petroleum hydrocarbon concentrations are reported in $\mu\text{g}/\text{L}$ (ppb) using gasoline as a standard.

<u>Sample Number</u>	<u>Concentration</u>	<u>Reporting Limit</u>
P-11	ND	500
P-111	ND	500
W-A	ND	500
Method Blank	ND	500

ND denotes not detected at indicated reportable limit.

Each sample was received by CEL chilled, intact, and with chain-of-custody attached.

ANALYTICAL REPORT
EPA 6010B CAC, Title 22 Metals

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 990107lcs3
Matrix: Solid
Preparation: Total Digestion
Method: EPA 6010B

Date Collected: 01/06/99
Date Received: 01/06/99
Date Prepared: 01/07/98
Date Analyzed: 01/07/99

Client Sample Number: P-11-3-5
Lab Sample Number: 99-01-0064-1

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Antimony	1.10	0.75		mg/kg
Arsenic	4.59	0.75		mg/kg
Barium	74.8	0.50		mg/kg
Beryllium	ND	0.25		mg/kg
Cadmium	ND	0.50		mg/kg
Chromium (Total)	12.9	0.25		mg/kg
Cobalt	6.93	0.25		mg/kg
Copper	8.91	0.25		mg/kg
Lead	1.89	0.50		mg/kg
Molybdenum	0.30	0.25		mg/kg
Nickel	10.1	0.25		mg/kg
Selenium	1.44	0.75		mg/kg
Silver	ND	0.50		mg/kg
Thallium	ND	0.75		mg/kg
Vanadium	20.6	0.25		mg/kg
Zinc	34.7	1.00		mg/kg

ANALYTICAL REPORT
EPA 6010B CAC, Title 22 Metals

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	990107lcs3	Date Collected:	01/06/99
Matrix:	Solid	Date Received:	01/06/99
Preparation:	Total Digestion	Date Prepared:	01/07/98
Method:	EPA 6010B	Date Analyzed:	01/07/99

Client Sample Number: P-111-3-5
Lab Sample Number: 99-01-0064-5

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Antimony	2.39	0.75		mg/kg
Arsenic	6.21	0.75		mg/kg
Barium	131	0.50		mg/kg
Beryllium	0.46	0.25		mg/kg
Cadmium	0.50	0.50		mg/kg
Chromium (Total)	30.5	0.25		mg/kg
Cobalt	12.6	0.25		mg/kg
Copper	30.9	0.25		mg/kg
Lead	8.24	0.50		mg/kg
Molybdenum	0.60	0.25		mg/kg
Nickel	22.8	0.25		mg/kg
Selenium	2.53	0.75		mg/kg
Silver	ND	0.50		mg/kg
Thallium	ND	0.75		mg/kg
Vanadium	40.6	0.25		mg/kg
Zinc	74.0	1.00		mg/kg

ANALYTICAL REPORT
EPA 6010B CAC, Title 22 Metals

Client Name:	Woodward-Clyde Consultants
Project ID:	POLB-Naval Shipyard
Work Order Number:	99-01-0064
QC Batch ID:	990107lcs3
Matrix:	Solid
Preparation:	Total Digestion
Method:	EPA 6010B
	Date Collected: 01/06/99
	Date Received: 01/06/99
	Date Prepared: 01/07/98
	Date Analyzed: 01/07/99

Client Sample Number: W-A-5-7
Lab Sample Number: 99-01-0064-10

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Antimony	1.06	0.75		mg/kg
Arsenic	1.75	0.75		mg/kg
Barium	78.8	0.50		mg/kg
Beryllium	ND	0.25		mg/kg
Cadmium	ND	0.50		mg/kg
Chromium (Total)	14.9	0.25		mg/kg
Cobalt	8.04	0.25		mg/kg
Copper	11.9	0.25		mg/kg
Lead	2.20	0.50		mg/kg
Molybdenum	ND	0.25		mg/kg
Nickel	11.7	0.25		mg/kg
Selenium	1.41	0.75		mg/kg
Silver	ND	0.50		mg/kg
Thallium	ND	0.75		mg/kg
Vanadium	24.4	0.25		mg/kg
Zinc	40.8	1.00		mg/kg

ANALYTICAL REPORT
EPA 6010B CAC, Title 22 Metals

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	990107lcs3	Date Collected:	01/06/99
Matrix:	Solid	Date Received:	01/06/99
Preparation:	Total Digestion	Date Prepared:	01/07/98
Method:	EPA 6010B	Date Analyzed:	01/07/99

Client Sample Number: P-11 SUMP
Lab Sample Number: 99-01-0064-18

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Antimony	22.5	0.75		mg/kg
Arsenic	5.77	0.75		mg/kg
Barium	139	0.50		mg/kg
Beryllium	ND	0.25		mg/kg
Cadmium	12.1	0.50		mg/kg
Chromium (Total)	157	0.25		mg/kg
Cobalt	9.65	0.25		mg/kg
Copper	634	0.25		mg/kg
Lead	292	0.50		mg/kg
Molybdenum	13.1	0.25		mg/kg
Nickel	35.9	0.25		mg/kg
Selenium	7.36	0.75		mg/kg
Silver	0.74	0.50		mg/kg
Thallium	ND	0.75		mg/kg
Vanadium	11.3	0.25		mg/kg
Zinc	1020	1.00		mg/kg

ANALYTICAL REPORT
EPA 6010B CAC, Title 22 Metals

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	990107lcs3	Date Collected:	N/A
Matrix:	Solid	Date Received:	N/A
Preparation:	Total Digestion	Date Prepared:	01/07/99
Method:	EPA 6010B	Date Analyzed:	01/07/99

Client Sample Number: Method Blank
Lab Sample Number: 097-01-002-826

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Antimony	ND	0.75		mg/kg
Arsenic	ND	0.75		mg/kg
Barium	ND	0.50		mg/kg
Beryllium	ND	0.25		mg/kg
Cadmium	ND	0.50		mg/kg
Chromium (Total)	ND	0.25		mg/kg
Cobalt	ND	0.25		mg/kg
Copper	ND	0.25		mg/kg
Lead	ND	0.50		mg/kg
Molybdenum	ND	0.25		mg/kg
Nickel	ND	0.25		mg/kg
Selenium	ND	0.75		mg/kg
Silver	ND	0.50		mg/kg
Thallium	ND	0.75		mg/kg
Vanadium	ND	0.25		mg/kg
Zinc	ND	1.00		mg/kg

ANALYTICAL REPORT
EPA 6010B CAC, Title 22 Metals

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 990107lcs2 Date Collected: 01/06/99
Matrix: Aqueous Date Received: 01/06/99
Preparation: Total Digestion Date Prepared: 01/07/98
Method: EPA 6010B Date Analyzed: 01/07/99

Client Sample Number: P-11
Lab Sample Number: 99-01-0064-4

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Antimony	ND	0.015		mg/L
Arsenic	0.021	0.015		mg/L
Barium	0.140	0.010		mg/L
Beryllium	ND	0.001		mg/L
Cadmium	ND	0.005		mg/L
Chromium (Total)	0.009	0.005		mg/L
Cobalt	ND	0.005		mg/L
Copper	0.015	0.005		mg/L
Lead	ND	0.010		mg/L
Molybdenum	0.008	0.005		mg/L
Nickel	ND	0.005		mg/L
Selenium	ND	0.015		mg/L
Silver	ND	0.005		mg/L
Thallium	ND	0.015		mg/L
Vanadium	0.007	0.005		mg/L
Zinc	0.062	0.010		mg/L

ANALYTICAL REPORT
EPA 6010B CAC, Title 22 Metals

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	990107lcs2	Date Collected:	01/06/99
Matrix:	Aqueous	Date Received:	01/06/99
Preparation:	Total Digestion	Date Prepared:	01/07/98
Method:	EPA 6010B	Date Analyzed:	01/07/99

Client Sample Number: P-111
Lab Sample Number: 99-01-0064-8

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Antimony	ND	0.015		mg/L
Arsenic	0.018	0.015		mg/L
Barium	0.160	0.010		mg/L
Beryllium	ND	0.001		mg/L
Cadmium	ND	0.005		mg/L
Chromium (Total)	0.029	0.005		mg/L
Cobalt	0.006	0.005		mg/L
Copper	0.038	0.005		mg/L
Lead	0.012	0.010		mg/L
Molybdenum	0.009	0.005		mg/L
Nickel	0.014	0.005		mg/L
Selenium	ND	0.015		mg/L
Silver	ND	0.005		mg/L
Thallium	ND	0.015		mg/L
Vanadium	0.027	0.005		mg/L
Zinc	0.088	0.010		mg/L

ANALYTICAL REPORT
EPA 6010B CAC, Title 22 Metals

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 990107lcs2
Matrix: Aqueous
Preparation: Total Digestion
Method: EPA 6010B

Date Collected: 01/06/99
Date Received: 01/06/99
Date Prepared: 01/07/98
Date Analyzed: 01/07/99

Client Sample Number: W-A
Lab Sample Number: 99-01-0064-12

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Antimony	ND	0.015		mg/L
Arsenic	0.023	0.015		mg/L
Barium	0.144	0.010		mg/L
Beryllium	ND	0.001		mg/L
Cadmium	ND	0.005		mg/L
Chromium (Total)	0.010	0.005		mg/L
Cobalt	ND	0.005		mg/L
Copper	0.020	0.005		mg/L
Lead	ND	0.010		mg/L
Molybdenum	0.010	0.005		mg/L
Nickel	ND	0.005		mg/L
Selenium	ND	0.015		mg/L
Silver	ND	0.005		mg/L
Thallium	ND	0.015		mg/L
Vanadium	0.012	0.005		mg/L
Zinc	0.033	0.010		mg/L

ANALYTICAL REPORT
EPA 6010B CAC, Title 22 Metals

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	990107lcs2	Date Collected:	01/06/99
Matrix:	Aqueous	Date Received:	01/06/99
Preparation:	Total Digestion	Date Prepared:	01/07/98
Method:	EPA 6010B	Date Analyzed:	01/07/99

Client Sample Number: P-11 SUMP
Lab Sample Number: 99-01-0064-15

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Antimony	0.054	0.015		mg/L
Arsenic	0.028	0.015		mg/L
Barium	0.381	0.010		mg/L
Beryllium	ND	0.001		mg/L
Cadmium	1.03	0.005		mg/L
Chromium (Total)	0.206	0.005		mg/L
Cobalt	0.183	0.005		mg/L
Copper	28.3	0.005		mg/L
Lead	1.50	0.010		mg/L
Molybdenum	ND	0.005		mg/L
Nickel	0.950	0.005		mg/L
Selenium	0.016	0.015		mg/L
Silver	0.079	0.005		mg/L
Thallium	ND	0.015		mg/L
Vanadium	0.035	0.005		mg/L
Zinc	40.3	0.010		mg/L

ANALYTICAL REPORT
 EPA 6010B CAC, Title 22 Metals

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	990107lcs2	Date Collected:	N/A
Matrix:	Aqueous	Date Received:	N/A
Preparation:	Total Digestion	Date Prepared:	01/07/99
Method:	EPA 6010B	Date Analyzed:	01/07/99

Client Sample Number: **Method Blank**
Lab Sample Number: 097-01-003-681

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Antimony	ND	0.015		mg/L
Arsenic	ND	0.015		mg/L
Barium	ND	0.010		mg/L
Beryllium	ND	0.001		mg/L
Cadmium	ND	0.005		mg/L
Chromium (Total)	ND	0.005		mg/L
Cobalt	ND	0.005		mg/L
Copper	ND	0.005		mg/L
Lead	ND	0.010		mg/L
Molybdenum	ND	0.005		mg/L
Nickel	ND	0.005		mg/L
Selenium	ND	0.015		mg/L
Silver	ND	0.005		mg/L
Thallium	ND	0.015		mg/L
Vanadium	ND	0.005		mg/L
Zinc	ND	0.010		mg/L

**ANALYTICAL REPORT
EPA 8082 PCBs**

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	9901061	Date Collected:	01/06/99
Matrix:	Solid	Date Received:	01/06/99
Preparation:	EPA 3550A	Date Prepared:	01/06/99
Method:	EPA 8082	Date Analyzed:	01/07/99

Client Sample Number: P-11-3-5
Lab Sample Number: 99-01-0064-1

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Aroclor-1016	ND	50		ug/kg
Aroclor-1221	ND	50		ug/kg
Aroclor-1232	ND	50		ug/kg
Aroclor-1242	ND	50		ug/kg
Aroclor-1248	ND	50		ug/kg
Aroclor-1254	ND	50		ug/kg
Aroclor-1260	ND	50		ug/kg
Aroclor-1262	ND	50		ug/kg

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Decachlorobiphenyl	108	50-130	
2,4,5,6-Tetrachloro-m-Xylene	92	50-130	



ANALYTICAL REPORT

EPA 8082 PCBs

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	9901061	Date Collected:	01/06/99
Matrix:	Solid	Date Received:	01/06/99
Preparation:	EPA 3550A	Date Prepared:	01/06/99
Method:	EPA 8082	Date Analyzed:	01/07/99

Client Sample Number: P-11-3-5
Lab Sample Number: 99-01-0064-1

Parameter	Result	RL	Qualifiers	Units
Aroclor-1016	ND	50		ug/kg
Aroclor-1221	ND	50		ug/kg
Aroclor-1232	ND	50		ug/kg
Aroclor-1242	ND	50		ug/kg
Aroclor-1248	ND	50		ug/kg
Aroclor-1254	ND	50		ug/kg
Aroclor-1260	ND	50		ug/kg
Aroclor-1262	ND	50		ug/kg

Surrogates:	REC (%)	Control Limits	Qualifiers
Decachlorobiphenyl	108	50-130	
2,4,5,6-Tetrachloro-m-Xylene	92	50-130	

**ANALYTICAL REPORT
EPA 8082 PCBs**

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	9901061	Date Collected:	01/06/99
Matrix:	Solid	Date Received:	01/06/99
Preparation:	EPA 3550A	Date Prepared:	01/06/99
Method:	EPA 8082	Date Analyzed:	01/07/99

Client Sample Number: P-111-3-5
Lab Sample Number: 99-01-0064-5

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Aroclor-1016	ND	50		ug/kg
Aroclor-1221	ND	50		ug/kg
Aroclor-1232	ND	50		ug/kg
Aroclor-1242	ND	50		ug/kg
Aroclor-1248	ND	50		ug/kg
Aroclor-1254	ND	50		ug/kg
Aroclor-1260	ND	50		ug/kg
Aroclor-1262	ND	50		ug/kg

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Decachlorobiphenyl	88	50-130	
2,4,5,6-Tetrachloro-m-Xylene	81	50-130	



ANALYTICAL REPORT

EPA 8082 PCBs

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	9901061	Date Collected:	01/06/99
Matrix:	Solid	Date Received:	01/06/99
Preparation:	EPA 3550A	Date Prepared:	01/06/99
Method:	EPA 8082	Date Analyzed:	01/07/99

Client Sample Number: P-111-3-5
Lab Sample Number: 99-01-0064-5

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Aroclor-1016	ND	50		ug/kg
Aroclor-1221	ND	50		ug/kg
Aroclor-1232	ND	50		ug/kg
Aroclor-1242	ND	50		ug/kg
Aroclor-1248	ND	50		ug/kg
Aroclor-1254	ND	50		ug/kg
Aroclor-1260	ND	50		ug/kg
Aroclor-1262	ND	50		ug/kg

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Decachlorobiphenyl	88	50-130	
2,4,5,6-Tetrachloro-m-Xylene	81	50-130	

**ANALYTICAL REPORT
EPA 8082 PCBs**

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	9901061	Date Collected:	N/A
Matrix:	Solid	Date Received:	N/A
Preparation:	EPA 3550A	Date Prepared:	01/06/99
Method:	EPA 8082	Date Analyzed:	01/07/99

Client Sample Number: Method Blank
Lab Sample Number: 095-01-014-1,130

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Aroclor-1016	ND	50		ug/kg
Aroclor-1221	ND	50		ug/kg
Aroclor-1232	ND	50		ug/kg
Aroclor-1242	ND	50		ug/kg
Aroclor-1248	ND	50		ug/kg
Aroclor-1254	ND	50		ug/kg
Aroclor-1260	ND	50		ug/kg
Aroclor-1262	ND	50		ug/kg

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Decachlorobiphenyl	59	50-130	
2,4,5,6-Tetrachloro-m-Xylene	69	50-130	



ANALYTICAL REPORT

EPA 8082 PCBs

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	9901061	Date Collected:	N/A
Matrix:	Solid	Date Received:	N/A
Preparation:	EPA 3550A	Date Prepared:	01/06/99
Method:	EPA 8082	Date Analyzed:	01/07/99

Client Sample Number: Method Blank

Lab Sample Number: 095-01-014-1,130

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Aroclor-1016	ND	50		ug/kg
Aroclor-1221	ND	50		ug/kg
Aroclor-1232	ND	50		ug/kg
Aroclor-1242	ND	50		ug/kg
Aroclor-1248	ND	50		ug/kg
Aroclor-1254	ND	50		ug/kg
Aroclor-1260	ND	50		ug/kg
Aroclor-1262	ND	50		ug/kg

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Decachlorobiphenyl	59	50-130	
2,4,5,6-Tetrachloro-m-Xylene	69	50-130	

**ANALYTICAL REPORT
EPA 8082 PCBs**

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	9901064	Date Collected:	01/06/99
Matrix:	Aqueous	Date Received:	01/06/99
Preparation:	EPA 3510B	Date Prepared:	01/06/99
Method:	EPA 8082	Date Analyzed:	01/07/99

Client Sample Number: P-11
Lab Sample Number: 99-01-0064-4

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Aroclor-1016	ND	1.00		ug/L
Aroclor-1221	ND	1.00		ug/L
Aroclor-1232	ND	1.00		ug/L
Aroclor-1242	ND	1.00		ug/L
Aroclor-1248	ND	1.00		ug/L
Aroclor-1254	ND	1.00		ug/L
Aroclor-1260	ND	1.00		ug/L
Aroclor-1262	ND	1.00		ug/L

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Decachlorobiphenyl	53	50-135	
2,4,5,6-Tetrachloro-m-Xylene	105	50-135	

ANALYTICAL REPORT

EPA 8082 PCBs

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	9901064	Date Collected:	01/06/99
Matrix:	Aqueous	Date Received:	01/06/99
Preparation:	EPA 3510B	Date Prepared:	01/06/99
Method:	EPA 8082	Date Analyzed:	01/07/99

Client Sample Number: P-111
Lab Sample Number: 99-01-0064-8

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Aroclor-1016	ND	1.00		ug/L
Aroclor-1221	ND	1.00		ug/L
Aroclor-1232	ND	1.00		ug/L
Aroclor-1242	ND	1.00		ug/L
Aroclor-1248	ND	1.00		ug/L
Aroclor-1254	ND	1.00		ug/L
Aroclor-1260	ND	1.00		ug/L
Aroclor-1262	ND	1.00		ug/L

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Decachlorobiphenyl	51	50-135	
2,4,5,6-Tetrachloro-m-Xylene	107	50-135	

ANALYTICAL REPORT

EPA 8082 PCBs

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	9901064	Date Collected:	N/A
Matrix:	Aqueous	Date Received:	N/A
Preparation:	EPA 3510B	Date Prepared:	01/06/99
Method:	EPA 8082	Date Analyzed:	01/07/99

Client Sample Number: Method Blank
Lab Sample Number: 095-01-015-440

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Aroclor-1016	ND	1.00		ug/L
Aroclor-1221	ND	1.00		ug/L
Aroclor-1232	ND	1.00		ug/L
Aroclor-1242	ND	1.00		ug/L
Aroclor-1248	ND	1.00		ug/L
Aroclor-1254	ND	1.00		ug/L
Aroclor-1260	ND	1.00		ug/L
Aroclor-1262	ND	1.00		ug/L

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Decachlorobiphenyl	90	50-135	
2,4,5,6-Tetrachloro-m-Xylene	103	50-135	

ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	990107AS	Date Collected:	01/06/99
Matrix:	Solid	Date Received:	01/06/99
Preparation:	N/A	Date Prepared:	N/A
Method:	EPA 8260B	Date Analyzed:	01/07/99

Client Sample Number: P-11-3-5
Lab Sample Number: 99-01-0064-1

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Acetone	ND	50		ug/kg
Benzene	ND	5.0		ug/kg
Bromobenzene	ND	5.0		ug/kg
Bromochloromethane	ND	5.0		ug/kg
Bromodichloromethane	ND	5.0		ug/kg
Bromoform	ND	5.0		ug/kg
Bromomethane	ND	5.0		ug/kg
2-Butanone	ND	50		ug/kg
n-Butylbenzene	ND	5.0		ug/kg
sec-Butylbenzene	ND	5.0		ug/kg
tert-Butylbenzene	ND	5.0		ug/kg
Carbon Disulfide	ND	50		ug/kg
Carbon Tetrachloride	ND	5.0		ug/kg
Chlorobenzene	ND	5.0		ug/kg
Chloroethane	ND	5.0		ug/kg
Chloroform	ND	5.0		ug/kg
Chloromethane	ND	5.0		ug/kg
2-Chlorotoluene	ND	5.0		ug/kg
4-Chlorotoluene	ND	5.0		ug/kg
Dibromochloromethane	ND	5.0		ug/kg
1,2-Dibromo-3-Chloropropane	ND	5.0		ug/kg
1,2-Dibromoethane	ND	5.0		ug/kg
Dibromomethane	ND	5.0		ug/kg
1,2-Dichlorobenzene	ND	5.0		ug/kg
1,3-Dichlorobenzene	ND	5.0		ug/kg
1,4-Dichlorobenzene	ND	5.0		ug/kg
Dichlorodifluoromethane	ND	5.0		ug/kg
1,1-Dichloroethane	ND	5.0		ug/kg
1,2-Dichloroethane	ND	5.0		ug/kg
1,1-Dichloroethene	ND	5.0		ug/kg
c-1,2-Dichloroethene	ND	5.0		ug/kg
t-1,2-Dichloroethene	ND	5.0		ug/kg
1,2-Dichloropropane	ND	5.0		ug/kg

ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	990107AS	Date Collected:	01/06/99
Matrix:	Solid	Date Received:	01/06/99
Preparation:	N/A	Date Prepared:	N/A
Method:	EPA 8260B	Date Analyzed:	01/07/99

Client Sample Number: P-11-3-5
Lab Sample Number: 99-01-0064-1

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
1,3-Dichloropropane	ND	5.0		ug/kg
2,2-Dichloropropane	ND	5.0		ug/kg
1,1-Dichloropropene	ND	5.0		ug/kg
c-1,3-Dichloropropene	ND	5.0		ug/kg
t-1,3-Dichloropropene	ND	5.0		ug/kg
Ethylbenzene	ND	5.0		ug/kg
2-Hexanone	ND	50		ug/kg
Isopropylbenzene	ND	5.0		ug/kg
p-Isopropyltoluene	ND	5.0		ug/kg
Methylene Chloride	ND	50		ug/kg
4-Methyl-2-Pentanone	ND	50		ug/kg
Naphthalene	ND	50		ug/kg
n-Propylbenzene	ND	5.0		ug/kg
Styrene	ND	5.0		ug/kg
1,1,1,2-Tetrachloroethane	ND	5.0		ug/kg
1,1,2,2-Tetrachloroethane	ND	5.0		ug/kg
Tetrachloroethene	ND	5.0		ug/kg
Toluene	ND	5.0		ug/kg
1,2,3-Trichlorobenzene	ND	10		ug/kg
1,2,4-Trichlorobenzene	ND	5.0		ug/kg
1,1,1-Trichloroethane	ND	5.0		ug/kg
1,1,2-Trichloroethane	ND	5.0		ug/kg
Trichloroethene	ND	5.0		ug/kg
Trichlorofluoromethane	ND	50		ug/kg
1,2,3-Trichloropropane	ND	5.0		ug/kg
1,2,4-Trimethylbenzene	ND	5.0		ug/kg
1,3,5-Trimethylbenzene	ND	5.0		ug/kg
Vinyl Acetate	ND	50		ug/kg
Vinyl Chloride	ND	5.0		ug/kg
p/m-Xylene	ND	5.0		ug/kg
o-Xylene	ND	5.0		ug/kg
Methyl-tert-Butyl Ether	ND	5.0		ug/kg



ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 990107AS Date Collected: 01/06/99
Matrix: Solid Date Received: 01/06/99
Preparation: N/A Date Prepared: N/A
Method: EPA 8260B Date Analyzed: 01/07/99

Client Sample Number: P-11-3-5
Lab Sample Number: 99-01-0064-1

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Dibromofluoromethane	103	80-120	
Toluene-d8	100	81-117	
1,4-Bromofluorobenzene	100	74-121	



ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 990107AS
Matrix: Solid
Preparation: N/A
Method: EPA 8260B

Date Collected: 01/06/99
Date Received: 01/06/99
Date Prepared: N/A
Date Analyzed: 01/07/99

Client Sample Number: P-111-3-5
Lab Sample Number: 99-01-0064-5

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Acetone	ND	50		ug/kg
Benzene	ND	5.0		ug/kg
Bromobenzene	ND	5.0		ug/kg
Bromoform	ND	5.0		ug/kg
Bromochloromethane	ND	5.0		ug/kg
Bromodichloromethane	ND	5.0		ug/kg
Bromomethane	ND	5.0		ug/kg
2-Butanone	ND	50		ug/kg
n-Butylbenzene	ND	5.0		ug/kg
sec-Butylbenzene	ND	5.0		ug/kg
tert-Butylbenzene	ND	5.0		ug/kg
Carbon Disulfide	ND	50		ug/kg
Carbon Tetrachloride	ND	5.0		ug/kg
Chlorobenzene	ND	5.0		ug/kg
Chloroethane	ND	5.0		ug/kg
Chloroform	ND	5.0		ug/kg
Chloromethane	ND	5.0		ug/kg
2-Chlorotoluene	ND	5.0		ug/kg
4-Chlorotoluene	ND	5.0		ug/kg
Dibromochloromethane	ND	5.0		ug/kg
1,2-Dibromo-3-Chloropropane	ND	5.0		ug/kg
1,2-Dibromoethane	ND	5.0		ug/kg
Dibromomethane	ND	5.0		ug/kg
1,2-Dichlorobenzene	ND	5.0		ug/kg
1,3-Dichlorobenzene	ND	5.0		ug/kg
1,4-Dichlorobenzene	ND	5.0		ug/kg
Dichlorodifluoromethane	ND	5.0		ug/kg
1,1-Dichloroethane	ND	5.0		ug/kg
1,2-Dichloroethane	ND	5.0		ug/kg
1,1-Dichloroethene	ND	5.0		ug/kg
c-1,2-Dichloroethene	ND	5.0		ug/kg
t-1,2-Dichloroethene	ND	5.0		ug/kg
1,2-Dichloropropane	ND	5.0		ug/kg

ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	990107AS	Date Collected:	01/06/99
Matrix:	Solid	Date Received:	01/06/99
Preparation:	N/A	Date Prepared:	N/A
Method:	EPA 8260B	Date Analyzed:	01/07/99

Client Sample Number: P-111-3-5
Lab Sample Number: 99-01-0064-5

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
1,3-Dichloropropane	ND	5.0		ug/kg
2,2-Dichloropropane	ND	5.0		ug/kg
1,1-Dichloropropene	ND	5.0		ug/kg
c-1,3-Dichloropropene	ND	5.0		ug/kg
t-1,3-Dichloropropene	ND	5.0		ug/kg
Ethylbenzene	ND	5.0		ug/kg
2-Hexanone	ND	50		ug/kg
Isopropylbenzene	ND	5.0		ug/kg
p-Isopropyltoluene	ND	5.0		ug/kg
Methylene Chloride	ND	50		ug/kg
4-Methyl-2-Pentanone	ND	50		ug/kg
Naphthalene	ND	50		ug/kg
n-Propylbenzene	ND	5.0		ug/kg
Styrene	ND	5.0		ug/kg
1,1,1,2-Tetrachloroethane	ND	5.0		ug/kg
1,1,2,2-Tetrachloroethane	ND	5.0		ug/kg
Tetrachloroethene	ND	5.0		ug/kg
Toluene	ND	5.0		ug/kg
1,2,3-Trichlorobenzene	ND	10		ug/kg
1,2,4-Trichlorobenzene	ND	5.0		ug/kg
1,1,1-Trichloroethane	ND	5.0		ug/kg
1,1,2-Trichloroethane	ND	5.0		ug/kg
Trichloroethene	ND	5.0		ug/kg
Trichlorofluoromethane	ND	50		ug/kg
1,2,3-Trichloropropane	ND	5.0		ug/kg
1,2,4-Trimethylbenzene	ND	5.0		ug/kg
1,3,5-Trimethylbenzene	ND	5.0		ug/kg
Vinyl Acetate	ND	50		ug/kg
Vinyl Chloride	ND	5.0		ug/kg
p/m-Xylene	ND	5.0		ug/kg
o-Xylene	ND	5.0		ug/kg
Methyl-tert-Butyl Ether	ND	5.0		ug/kg

ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name:	Woodward-Clyde Consultants
Project ID:	POLB-Naval Shipyard
Work Order Number:	99-01-0064
QC Batch ID:	990107AS
Matrix:	Solid
Preparation:	N/A
Method:	EPA 8260B
	Date Collected: 01/06/99
	Date Received: 01/06/99
	Date Prepared: N/A
	Date Analyzed: 01/07/99

Client Sample Number: P-111-3-5
Lab Sample Number: 99-01-0064-5

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Dibromofluoromethane	103	80-120	
Toluene-d8	101	81-117	
1,4-Bromofluorobenzene	100	74-121	



ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 990107AS Date Collected: 01/06/99
Matrix: Solid Date Received: 01/06/99
Preparation: N/A Date Prepared: N/A
Method: EPA 8260B Date Analyzed: 01/07/99

Client Sample Number: W-A-5-7
Lab Sample Number: 99-01-0064-10

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Acetone	ND	50		ug/kg
Benzene	ND	5.0		ug/kg
Bromobenzene	ND	5.0		ug/kg
Bromochloromethane	ND	5.0		ug/kg
Bromodichloromethane	ND	5.0		ug/kg
Bromoform	ND	5.0		ug/kg
Bromomethane	ND	5.0		ug/kg
2-Butanone	ND	50		ug/kg
n-Butylbenzene	ND	5.0		ug/kg
sec-Butylbenzene	ND	5.0		ug/kg
tert-Butylbenzene	ND	5.0		ug/kg
Carbon Disulfide	ND	50		ug/kg
Carbon Tetrachloride	ND	5.0		ug/kg
Chlorobenzene	ND	5.0		ug/kg
Chloroethane	ND	5.0		ug/kg
Chloroform	ND	5.0		ug/kg
Chloromethane	ND	5.0		ug/kg
2-Chlorotoluene	ND	5.0		ug/kg
4-Chlorotoluene	ND	5.0		ug/kg
Dibromochloromethane	ND	5.0		ug/kg
1,2-Dibromo-3-Chloropropane	ND	5.0		ug/kg
1,2-Dibromoethane	ND	5.0		ug/kg
Dibromomethane	ND	5.0		ug/kg
1,2-Dichlorobenzene	ND	5.0		ug/kg
1,3-Dichlorobenzene	ND	5.0		ug/kg
1,4-Dichlorobenzene	ND	5.0		ug/kg
Dichlorodifluoromethane	ND	5.0		ug/kg
1,1-Dichloroethane	ND	5.0		ug/kg
1,2-Dichloroethane	ND	5.0		ug/kg
1,1-Dichloroethene	ND	5.0		ug/kg
c-1,2-Dichloroethene	ND	5.0		ug/kg
t-1,2-Dichloroethene	ND	5.0		ug/kg
1,2-Dichloropropane	ND	5.0		ug/kg



ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	990107AS	Date Collected:	01/06/99
Matrix:	Solid	Date Received:	01/06/99
Preparation:	N/A	Date Prepared:	N/A
Method:	EPA 8260B	Date Analyzed:	01/07/99

Client Sample Number: W-A-5-7
Lab Sample Number: 99-01-0064-10

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
1,3-Dichloropropane	ND	5.0		ug/kg
2,2-Dichloropropane	ND	5.0		ug/kg
1,1-Dichloropropene	ND	5.0		ug/kg
c-1,3-Dichloropropene	ND	5.0		ug/kg
t-1,3-Dichloropropene	ND	5.0		ug/kg
Ethylbenzene	ND	5.0		ug/kg
2-Hexanone	ND	50		ug/kg
Isopropylbenzene	ND	5.0		ug/kg
p-Isopropyltoluene	ND	5.0		ug/kg
Methylene Chloride	ND	50		ug/kg
4-Methyl-2-Pentanone	ND	50		ug/kg
Naphthalene	ND	50		ug/kg
n-Propylbenzene	ND	5.0		ug/kg
Styrene	ND	5.0		ug/kg
1,1,1,2-Tetrachloroethane	ND	5.0		ug/kg
1,1,2,2-Tetrachloroethane	ND	5.0		ug/kg
Tetrachloroethene	ND	5.0		ug/kg
Toluene	ND	5.0		ug/kg
1,2,3-Trichlorobenzene	ND	10		ug/kg
1,2,4-Trichlorobenzene	ND	5.0		ug/kg
1,1,1-Trichloroethane	ND	5.0		ug/kg
1,1,2-Trichloroethane	ND	5.0		ug/kg
Trichloroethene	ND	5.0		ug/kg
Trichlorofluoromethane	ND	50		ug/kg
1,2,3-Trichloropropane	ND	5.0		ug/kg
1,2,4-Trimethylbenzene	ND	5.0		ug/kg
1,3,5-Trimethylbenzene	ND	5.0		ug/kg
Vinyl Acetate	ND	50		ug/kg
Vinyl Chloride	ND	5.0		ug/kg
p/m-Xylene	ND	5.0		ug/kg
o-Xylene	ND	5.0		ug/kg
Methyl-tert-Butyl Ether	ND	5.0		ug/kg



ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	990107AS	Date Collected:	01/06/99
Matrix:	Solid	Date Received:	01/06/99
Preparation:	N/A	Date Prepared:	N/A
Method:	EPA 8260B	Date Analyzed:	01/07/99

Client Sample Number: W-A-5-7
Lab Sample Number: 99-01-0064-10

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Dibromofluoromethane	103	80-120	
Toluene-d8	94	81-117	
1,4-Bromofluorobenzene	100	74-121	



ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 990107AS Date Collected: 01/06/99
Matrix: Solid Date Received: 01/06/99
Preparation: N/A Date Prepared: N/A
Method: EPA 8260B Date Analyzed: 01/07/99

Client Sample Number: P-11-3-5
Lab Sample Number: 99-01-0064-1

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Acetone	ND	50		ug/kg
Benzene	ND	5.0		ug/kg
Bromobenzene	ND	5.0		ug/kg
Bromochloromethane	ND	5.0		ug/kg
Bromodichloromethane	ND	5.0		ug/kg
Bromoform	ND	5.0		ug/kg
Bromomethane	ND	5.0		ug/kg
2-Butanone	ND	50		ug/kg
n-Butylbenzene	ND	5.0		ug/kg
sec-Butylbenzene	ND	5.0		ug/kg
tert-Butylbenzene	ND	5.0		ug/kg
Carbon Disulfide	ND	50		ug/kg
Carbon Tetrachloride	ND	5.0		ug/kg
Chlorobenzene	ND	5.0		ug/kg
Chloroethane	ND	5.0		ug/kg
Chloroform	ND	5.0		ug/kg
Chloromethane	ND	5.0		ug/kg
2-Chlorotoluene	ND	5.0		ug/kg
4-Chlorotoluene	ND	5.0		ug/kg
Dibromochloromethane	ND	5.0		ug/kg
1,2-Dibromo-3-Chloropropane	ND	5.0		ug/kg
1,2-Dibromoethane	ND	5.0		ug/kg
Dibromomethane	ND	5.0		ug/kg
1,2-Dichlorobenzene	ND	5.0		ug/kg
1,3-Dichlorobenzene	ND	5.0		ug/kg
1,4-Dichlorobenzene	ND	5.0		ug/kg
Dichlorodifluoromethane	ND	5.0		ug/kg
1,1-Dichloroethane	ND	5.0		ug/kg
1,2-Dichloroethane	ND	5.0		ug/kg
1,1-Dichloroethene	ND	5.0		ug/kg
c-1,2-Dichloroethene	ND	5.0		ug/kg
t-1,2-Dichloroethene	ND	5.0		ug/kg
1,2-Dichloropropane	ND	5.0		ug/kg



ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 990107AS Date Collected: 01/06/99
Matrix: Solid Date Received: 01/06/99
Preparation: N/A Date Prepared: N/A
Method: EPA 8260B Date Analyzed: 01/07/99

Client Sample Number: P-11-3-5
Lab Sample Number: 99-01-0064-1

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
1,3-Dichloropropane	ND	5.0		ug/kg
2,2-Dichloropropane	ND	5.0		ug/kg
1,1-Dichloropropene	ND	5.0		ug/kg
c-1,3-Dichloropropene	ND	5.0		ug/kg
t-1,3-Dichloropropene	ND	5.0		ug/kg
Ethylbenzene	ND	5.0		ug/kg
2-Hexanone	ND	50		ug/kg
Isopropylbenzene	ND	5.0		ug/kg
p-Isopropyltoluene	ND	5.0		ug/kg
Methylene Chloride	ND	50		ug/kg
4-Methyl-2-Pentanone	ND	50		ug/kg
Naphthalene	ND	50		ug/kg
n-Propylbenzene	ND	5.0		ug/kg
Styrene	ND	5.0		ug/kg
1,1,1,2-Tetrachloroethane	ND	5.0		ug/kg
1,1,2,2-Tetrachloroethane	ND	5.0		ug/kg
Tetrachloroethene	ND	5.0		ug/kg
Toluene	ND	5.0		ug/kg
1,2,3-Trichlorobenzene	ND	10		ug/kg
1,2,4-Trichlorobenzene	ND	5.0		ug/kg
1,1,1-Trichloroethane	ND	5.0		ug/kg
1,1,2-Trichloroethane	ND	5.0		ug/kg
Trichloroethene	ND	5.0		ug/kg
Trichlorofluoromethane	ND	50		ug/kg
1,2,3-Trichloropropane	ND	5.0		ug/kg
1,2,4-Trimethylbenzene	ND	5.0		ug/kg
1,3,5-Trimethylbenzene	ND	5.0		ug/kg
Vinyl Acetate	ND	50		ug/kg
Vinyl Chloride	ND	5.0		ug/kg
p/m-Xylene	ND	5.0		ug/kg
o-Xylene	ND	5.0		ug/kg
Methyl-tert-Butyl Ether	ND	5.0		ug/kg



ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	990107AS	Date Collected:	01/06/99
Matrix:	Solid	Date Received:	01/06/99
Preparation:	N/A	Date Prepared:	N/A
Method:	EPA 8260B	Date Analyzed:	01/07/99

Client Sample Number: P-11-3-5
Lab Sample Number: 99-01-0064-1

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Dibromofluoromethane	103	80-120	
Toluene-d8	100	81-117	
1,4-Bromofluorobenzene	100	74-121	



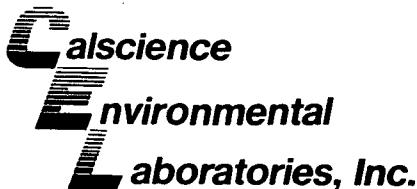
ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 990107AS
Matrix: Solid
Preparation: N/A
Method: EPA 8260B

Date Collected: 01/06/99
Date Received: 01/06/99
Date Prepared: N/A
Date Analyzed: 01/07/99

Client Sample Number: P-111-3-5
Lab Sample Number: 99-01-0064-5

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Acetone	ND	50		ug/kg
Benzene	ND	5.0		ug/kg
Bromobenzene	ND	5.0		ug/kg
Bromochloromethane	ND	5.0		ug/kg
Bromodichloromethane	ND	5.0		ug/kg
Bromoform	ND	5.0		ug/kg
Bromomethane	ND	5.0		ug/kg
2-Butanone	ND	50		ug/kg
n-Butylbenzene	ND	5.0		ug/kg
sec-Butylbenzene	ND	5.0		ug/kg
tert-Butylbenzene	ND	5.0		ug/kg
Carbon Disulfide	ND	50		ug/kg
Carbon Tetrachloride	ND	5.0		ug/kg
Chlorobenzene	ND	5.0		ug/kg
Chloroethane	ND	5.0		ug/kg
Chloroform	ND	5.0		ug/kg
Chloromethane	ND	5.0		ug/kg
2-Chlorotoluene	ND	5.0		ug/kg
4-Chlorotoluene	ND	5.0		ug/kg
Dibromochloromethane	ND	5.0		ug/kg
1,2-Dibromo-3-Chloropropane	ND	5.0		ug/kg
1,2-Dibromoethane	ND	5.0		ug/kg
Dibromomethane	ND	5.0		ug/kg
1,2-Dichlorobenzene	ND	5.0		ug/kg
1,3-Dichlorobenzene	ND	5.0		ug/kg
1,4-Dichlorobenzene	ND	5.0		ug/kg
Dichlorodifluoromethane	ND	5.0		ug/kg
1,1-Dichloroethane	ND	5.0		ug/kg
1,2-Dichloroethane	ND	5.0		ug/kg
1,1-Dichloroethene	ND	5.0		ug/kg
c-1,2-Dichloroethene	ND	5.0		ug/kg
t-1,2-Dichloroethene	ND	5.0		ug/kg
1,2-Dichloropropane	ND	5.0		ug/kg



ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 990107AS Date Collected: 01/06/99
Matrix: Solid Date Received: 01/06/99
Preparation: N/A Date Prepared: N/A
Method: EPA 8260B Date Analyzed: 01/07/99

Client Sample Number: P-111-3-5
Lab Sample Number: 99-01-0064-5

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
1,3-Dichloropropane	ND	5.0		ug/kg
2,2-Dichloropropane	ND	5.0		ug/kg
1,1-Dichloropropene	ND	5.0		ug/kg
c-1,3-Dichloropropene	ND	5.0		ug/kg
t-1,3-Dichloropropene	ND	5.0		ug/kg
Ethylbenzene	ND	5.0		ug/kg
2-Hexanone	ND	50		ug/kg
Isopropylbenzene	ND	5.0		ug/kg
p-Isopropyltoluene	ND	5.0		ug/kg
Methylene Chloride	ND	50		ug/kg
4-Methyl-2-Pentanone	ND	50		ug/kg
Naphthalene	ND	50		ug/kg
n-Propylbenzene	ND	5.0		ug/kg
Styrene	ND	5.0		ug/kg
1,1,1,2-Tetrachloroethane	ND	5.0		ug/kg
1,1,2,2-Tetrachloroethane	ND	5.0		ug/kg
Tetrachloroethene	ND	5.0		ug/kg
Toluene	ND	5.0		ug/kg
1,2,3-Trichlorobenzene	ND	10		ug/kg
1,2,4-Trichlorobenzene	ND	5.0		ug/kg
1,1,1-Trichloroethane	ND	5.0		ug/kg
1,1,2-Trichloroethane	ND	5.0		ug/kg
Trichloroethene	ND	5.0		ug/kg
Trichlorofluoromethane	ND	50		ug/kg
1,2,3-Trichloropropane	ND	5.0		ug/kg
1,2,4-Trimethylbenzene	ND	5.0		ug/kg
1,3,5-Trimethylbenzene	ND	5.0		ug/kg
Vinyl Acetate	ND	50		ug/kg
Vinyl Chloride	ND	5.0		ug/kg
p/m-Xylene	ND	5.0		ug/kg
o-Xylene	ND	5.0		ug/kg
Methyl-tert-Butyl Ether	ND	5.0		ug/kg



ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 990107AS Date Collected: 01/06/99
Matrix: Solid Date Received: 01/06/99
Preparation: N/A Date Prepared: N/A
Method: EPA 8260B Date Analyzed: 01/07/99

Client Sample Number: P-111-3-5
Lab Sample Number: 99-01-0064-5

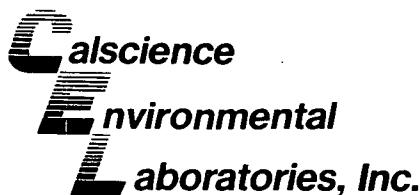
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Dibromofluoromethane	103	80-120	
Toluene-d8	101	81-117	
1,4-Bromofluorobenzene	100	74-121	

ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	990107AS	Date Collected:	N/A
Matrix:	Solid	Date Received:	N/A
Preparation:	N/A	Date Prepared:	N/A
Method:	EPA 8260B	Date Analyzed:	01/07/99

Client Sample Number: Method Blank
Lab Sample Number: 095-01-025-1,081

Parameter	Result	RL	Qualifiers	Units
Acetone	ND	50		ug/kg
Benzene	ND	5.0		ug/kg
Bromobenzene	ND	5.0		ug/kg
Bromochloromethane	ND	5.0		ug/kg
Bromodichloromethane	ND	5.0		ug/kg
Bromoform	ND	5.0		ug/kg
Bromomethane	ND	5.0		ug/kg
2-Butanone	ND	50		ug/kg
n-Butylbenzene	ND	5.0		ug/kg
sec-Butylbenzene	ND	5.0		ug/kg
tert-Butylbenzene	ND	5.0		ug/kg
Carbon Disulfide	ND	50		ug/kg
Carbon Tetrachloride	ND	5.0		ug/kg
Chlorobenzene	ND	5.0		ug/kg
Chloroethane	ND	5.0		ug/kg
Chloroform	ND	5.0		ug/kg
Chloromethane	ND	5.0		ug/kg
2-Chlorotoluene	ND	5.0		ug/kg
4-Chlorotoluene	ND	5.0		ug/kg
Dibromochloromethane	ND	5.0		ug/kg
1,2-Dibromo-3-Chloropropane	ND	5.0		ug/kg
1,2-Dibromoethane	ND	5.0		ug/kg
Dibromomethane	ND	5.0		ug/kg
1,2-Dichlorobenzene	ND	5.0		ug/kg
1,3-Dichlorobenzene	ND	5.0		ug/kg
1,4-Dichlorobenzene	ND	5.0		ug/kg
Dichlorodifluoromethane	ND	5.0		ug/kg
1,1-Dichloroethane	ND	5.0		ug/kg
1,2-Dichloroethane	ND	5.0		ug/kg
1,1-Dichloroethene	ND	5.0		ug/kg
c-1,2-Dichloroethene	ND	5.0		ug/kg
t-1,2-Dichloroethene	ND	5.0		ug/kg
1,2-Dichloropropane	ND	5.0		ug/kg

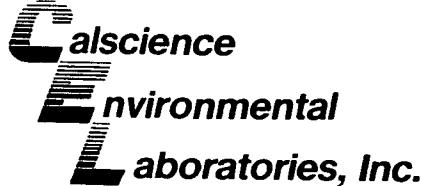


ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 990107AS Date Collected: N/A
Matrix: Solid Date Received: N/A
Preparation: N/A Date Prepared: N/A
Method: EPA 8260B Date Analyzed: 01/07/99

Client Sample Number: Method Blank
Lab Sample Number: 095-01-025-1,081

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
1,3-Dichloropropane	ND	5.0		ug/kg
2,2-Dichloropropane	ND	5.0		ug/kg
1,1-Dichloropropene	ND	5.0		ug/kg
c-1,3-Dichloropropene	ND	5.0		ug/kg
t-1,3-Dichloropropene	ND	5.0		ug/kg
Ethylbenzene	ND	5.0		ug/kg
2-Hexanone	ND	50		ug/kg
Isopropylbenzene	ND	5.0		ug/kg
p-Isopropyltoluene	ND	5.0		ug/kg
Methylene Chloride	ND	50		ug/kg
4-Methyl-2-Pentanone	ND	50		ug/kg
Naphthalene	ND	50		ug/kg
n-Propylbenzene	ND	5.0		ug/kg
Styrene	ND	5.0		ug/kg
1,1,1,2-Tetrachloroethane	ND	5.0		ug/kg
1,1,2,2-Tetrachloroethane	ND	5.0		ug/kg
Tetrachloroethene	ND	5.0		ug/kg
Toluene	ND	5.0		ug/kg
1,2,3-Trichlorobenzene	ND	10		ug/kg
1,2,4-Trichlorobenzene	ND	5.0		ug/kg
1,1,1-Trichloroethane	ND	5.0		ug/kg
1,1,2-Trichloroethane	ND	5.0		ug/kg
Trichloroethene	ND	5.0		ug/kg
Trichlorofluoromethane	ND	50		ug/kg
1,2,3-Trichloropropane	ND	5.0		ug/kg
1,2,4-Trimethylbenzene	ND	5.0		ug/kg
1,3,5-Trimethylbenzene	ND	5.0		ug/kg
Vinyl Acetate	ND	50		ug/kg
Vinyl Chloride	ND	5.0		ug/kg
p/m-Xylene	ND	5.0		ug/kg
o-Xylene	ND	5.0		ug/kg
Methyl-tert-Butyl Ether	ND	5.0		ug/kg



ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name:	Woodward-Clyde Consultants
Project ID:	POLB-Naval Shipyard
Work Order Number:	99-01-0064
QC Batch ID:	990107AS
Matrix:	Solid
Preparation:	N/A
Method:	EPA 8260B
	Date Collected: N/A
	Date Received: N/A
	Date Prepared: N/A
	Date Analyzed: 01/07/99

Client Sample Number: Method Blank
Lab Sample Number: 095-01-025-1,081

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Dibromofluoromethane	102	80-120	
Toluene-d8	102	81-117	
1,4-Bromofluorobenzene	93	74-121	

ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	990107AS	Date Collected:	01/06/99
Matrix:	Solid	Date Received:	01/06/99
Preparation:	N/A	Date Prepared:	N/A
Method:	EPA 8260B	Date Analyzed:	01/07/99

Client Sample Number: W-A-5-7
Lab Sample Number: 99-01-0064-10

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Acetone	ND	50		ug/kg
Benzene	ND	5.0		ug/kg
Bromobenzene	ND	5.0		ug/kg
Bromochloromethane	ND	5.0		ug/kg
Bromodichloromethane	ND	5.0		ug/kg
Bromoform	ND	5.0		ug/kg
Bromomethane	ND	5.0		ug/kg
2-Butanone	ND	50		ug/kg
n-Butylbenzene	ND	5.0		ug/kg
sec-Butylbenzene	ND	5.0		ug/kg
tert-Butylbenzene	ND	5.0		ug/kg
Carbon Disulfide	ND	50		ug/kg
Carbon Tetrachloride	ND	5.0		ug/kg
Chlorobenzene	ND	5.0		ug/kg
Chloroethane	ND	5.0		ug/kg
Chloroform	ND	5.0		ug/kg
Chloromethane	ND	5.0		ug/kg
2-Chlorotoluene	ND	5.0		ug/kg
4-Chlorotoluene	ND	5.0		ug/kg
Dibromochloromethane	ND	5.0		ug/kg
1,2-Dibromo-3-Chloropropane	ND	5.0		ug/kg
1,2-Dibromoethane	ND	5.0		ug/kg
Dibromomethane	ND	5.0		ug/kg
1,2-Dichlorobenzene	ND	5.0		ug/kg
1,3-Dichlorobenzene	ND	5.0		ug/kg
1,4-Dichlorobenzene	ND	5.0		ug/kg
Dichlorodifluoromethane	ND	5.0		ug/kg
1,1-Dichloroethane	ND	5.0		ug/kg
1,2-Dichloroethane	ND	5.0		ug/kg
1,1-Dichloroethene	ND	5.0		ug/kg
c-1,2-Dichloroethene	ND	5.0		ug/kg
t-1,2-Dichloroethene	ND	5.0		ug/kg
1,2-Dichloropropane	ND	5.0		ug/kg

ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	990107AS	Date Collected:	01/06/99
Matrix:	Solid	Date Received:	01/06/99
Preparation:	N/A	Date Prepared:	N/A
Method:	EPA 8260B	Date Analyzed:	01/07/99

Client Sample Number: W-A-5-7
Lab Sample Number: 99-01-0064-10

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
1,3-Dichloropropane	ND	5.0		ug/kg
2,2-Dichloropropane	ND	5.0		ug/kg
1,1-Dichloropropene	ND	5.0		ug/kg
c-1,3-Dichloropropene	ND	5.0		ug/kg
t-1,3-Dichloropropene	ND	5.0		ug/kg
Ethylbenzene	ND	5.0		ug/kg
2-Hexanone	ND	50		ug/kg
Isopropylbenzene	ND	5.0		ug/kg
p-Isopropyltoluene	ND	5.0		ug/kg
Methylene Chloride	ND	50		ug/kg
4-Methyl-2-Pentanone	ND	50		ug/kg
Naphthalene	ND	50		ug/kg
n-Propylbenzene	ND	5.0		ug/kg
Styrene	ND	5.0		ug/kg
1,1,1,2-Tetrachloroethane	ND	5.0		ug/kg
1,1,2,2-Tetrachloroethane	ND	5.0		ug/kg
Tetrachloroethene	ND	5.0		ug/kg
Toluene	ND	5.0		ug/kg
1,2,3-Trichlorobenzene	ND	10		ug/kg
1,2,4-Trichlorobenzene	ND	5.0		ug/kg
1,1,1-Trichloroethane	ND	5.0		ug/kg
1,1,2-Trichloroethane	ND	5.0		ug/kg
Trichloroethene	ND	5.0		ug/kg
Trichlorofluoromethane	ND	50		ug/kg
1,2,3-Trichloropropane	ND	5.0		ug/kg
1,2,4-Trimethylbenzene	ND	5.0		ug/kg
1,3,5-Trimethylbenzene	ND	5.0		ug/kg
Vinyl Acetate	ND	50		ug/kg
Vinyl Chloride	ND	5.0		ug/kg
p/m-Xylene	ND	5.0		ug/kg
o-Xylene	ND	5.0		ug/kg
Methyl-tert-Butyl Ether	ND	5.0		ug/kg



ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 990107AS
Matrix: Solid
Preparation: N/A
Method: EPA 8260B

Date Collected: 01/06/99
Date Received: 01/06/99
Date Prepared: N/A
Date Analyzed: 01/07/99

Client Sample Number: W-A-5-7
Lab Sample Number: 99-01-0064-10

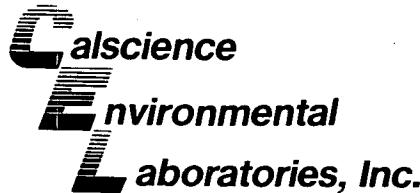
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Dibromofluoromethane	103	80-120	
Toluene-d8	94	81-117	
1,4-Bromofluorobenzene	100	74-121	

ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	990107AS	Date Collected:	N/A
Matrix:	Solid	Date Received:	N/A
Preparation:	N/A	Date Prepared:	N/A
Method:	EPA 8260B	Date Analyzed:	01/07/99

Client Sample Number: Method Blank
Lab Sample Number: 095-01-025-1,081

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Acetone	ND	50		ug/kg
Benzene	ND	5.0		ug/kg
Bromobenzene	ND	5.0		ug/kg
Bromochloromethane	ND	5.0		ug/kg
Bromodichloromethane	ND	5.0		ug/kg
Bromoform	ND	5.0		ug/kg
Bromomethane	ND	5.0		ug/kg
2-Butanone	ND	50		ug/kg
n-Butylbenzene	ND	5.0		ug/kg
sec-Butylbenzene	ND	5.0		ug/kg
tert-Butylbenzene	ND	5.0		ug/kg
Carbon Disulfide	ND	50		ug/kg
Carbon Tetrachloride	ND	5.0		ug/kg
Chlorobenzene	ND	5.0		ug/kg
Chloroethane	ND	5.0		ug/kg
Chloroform	ND	5.0		ug/kg
Chloromethane	ND	5.0		ug/kg
2-Chlorotoluene	ND	5.0		ug/kg
4-Chlorotoluene	ND	5.0		ug/kg
Dibromochloromethane	ND	5.0		ug/kg
1,2-Dibromo-3-Chloropropane	ND	5.0		ug/kg
1,2-Dibromoethane	ND	5.0		ug/kg
Dibromomethane	ND	5.0		ug/kg
1,2-Dichlorobenzene	ND	5.0		ug/kg
1,3-Dichlorobenzene	ND	5.0		ug/kg
1,4-Dichlorobenzene	ND	5.0		ug/kg
Dichlorodifluoromethane	ND	5.0		ug/kg
1,1-Dichloroethane	ND	5.0		ug/kg
1,2-Dichloroethane	ND	5.0		ug/kg
1,1-Dichloroethene	ND	5.0		ug/kg
c-1,2-Dichloroethene	ND	5.0		ug/kg
t-1,2-Dichloroethene	ND	5.0		ug/kg
1,2-Dichloropropane	ND	5.0		ug/kg



ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 990107AS
Matrix: Solid
Preparation: N/A
Method: EPA 8260B

Date Collected: N/A
Date Received: N/A
Date Prepared: N/A
Date Analyzed: 01/07/99

Client Sample Number: Method Blank
Lab Sample Number: 095-01-025-1,081

Parameter	Result	RL	Qualifiers	Units
1,3-Dichloropropane	ND	5.0		ug/kg
2,2-Dichloropropane	ND	5.0		ug/kg
1,1-Dichloropropene	ND	5.0		ug/kg
c-1,3-Dichloropropene	ND	5.0		ug/kg
t-1,3-Dichloropropene	ND	5.0		ug/kg
Ethylbenzene	ND	5.0		ug/kg
2-Hexanone	ND	50		ug/kg
Isopropylbenzene	ND	5.0		ug/kg
p-Isopropyltoluene	ND	5.0		ug/kg
Methylene Chloride	ND	50		ug/kg
4-Methyl-2-Pentanone	ND	50		ug/kg
Naphthalene	ND	50		ug/kg
n-Propylbenzene	ND	5.0		ug/kg
Styrene	ND	5.0		ug/kg
1,1,1,2-Tetrachloroethane	ND	5.0		ug/kg
1,1,2,2-Tetrachloroethane	ND	5.0		ug/kg
Tetrachloroethene	ND	5.0		ug/kg
Toluene	ND	5.0		ug/kg
1,2,3-Trichlorobenzene	ND	10		ug/kg
1,2,4-Trichlorobenzene	ND	5.0		ug/kg
1,1,1-Trichloroethane	ND	5.0		ug/kg
1,1,2-Trichloroethane	ND	5.0		ug/kg
Trichloroethene	ND	5.0		ug/kg
Trichlorofluoromethane	ND	50		ug/kg
1,2,3-Trichloropropane	ND	5.0		ug/kg
1,2,4-Trimethylbenzene	ND	5.0		ug/kg
1,3,5-Trimethylbenzene	ND	5.0		ug/kg
Vinyl Acetate	ND	50		ug/kg
Vinyl Chloride	ND	5.0		ug/kg
p/m-Xylene	ND	5.0		ug/kg
o-Xylene	ND	5.0		ug/kg
Methyl-tert-Butyl Ether	ND	5.0		ug/kg



ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name:	Woodward-Clyde Consultants
Project ID:	POLB-Naval Shipyard
Work Order Number:	99-01-0064
QC Batch ID:	990107AS
Matrix:	Solid
Preparation:	N/A
Method:	EPA 8260B
	Date Collected: N/A
	Date Received: N/A
	Date Prepared: N/A
	Date Analyzed: 01/07/99

Client Sample Number: **Method Blank**
Lab Sample Number: 095-01-025-1,081

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Dibromofluoromethane	102	80-120	
Toluene-d8	102	81-117	
1,4-Bromofluorobenzene	93	74-121	



ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 990107AW Date Collected: 01/06/99
Matrix: Aqueous Date Received: 01/06/99
Preparation: N/A Date Prepared: N/A
Method: EPA 8260B Date Analyzed: 01/07/99

Client Sample Number: P-11
Lab Sample Number: 99-01-0064-4

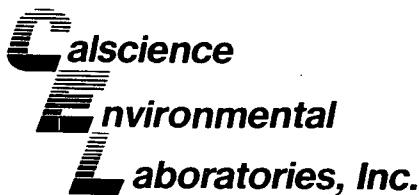
<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Acetone	ND	10		ug/L
Benzene	ND	0.5		ug/L
Bromobenzene	ND	1.0		ug/L
Bromochloromethane	ND	1.0		ug/L
Bromodichloromethane	ND	1.0		ug/L
Bromoform	ND	1.0		ug/L
Bromomethane	ND	1.0		ug/L
2-Butanone	ND	10		ug/L
n-Butylbenzene	ND	1.0		ug/L
sec-Butylbenzene	ND	1.0		ug/L
tert-Butylbenzene	ND	1.0		ug/L
Carbon Disulfide	ND	10		ug/L
Carbon Tetrachloride	ND	0.5		ug/L
Chlorobenzene	ND	1.0		ug/L
Chloroethane	ND	1.0		ug/L
Chloroform	ND	1.0		ug/L
Chloromethane	ND	1.0		ug/L
2-Chlorotoluene	ND	1.0		ug/L
4-Chlorotoluene	ND	1.0		ug/L
Dibromochloromethane	ND	1.0		ug/L
1,2-Dibromo-3-Chloropropane	ND	1.0		ug/L
1,2-Dibromoethane	ND	1.0		ug/L
Dibromomethane	ND	1.0		ug/L
1,2-Dichlorobenzene	ND	1.0		ug/L
1,3-Dichlorobenzene	ND	1.0		ug/L
1,4-Dichlorobenzene	ND	1.0		ug/L
Dichlorodifluoromethane	ND	1.0		ug/L
1,1-Dichloroethane	ND	1.0		ug/L
1,2-Dichloroethane	ND	0.5		ug/L
1,1-Dichloroethene	ND	1.0		ug/L
c-1,2-Dichloroethene	ND	1.0		ug/L
t-1,2-Dichloroethene	ND	1.0		ug/L
1,2-Dichloropropane	ND	1.0		ug/L

ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	990107AW	Date Collected:	01/06/99
Matrix:	Aqueous	Date Received:	01/06/99
Preparation:	N/A	Date Prepared:	N/A
Method:	EPA 8260B	Date Analyzed:	01/07/99

Client Sample Number: P-11
Lab Sample Number: 99-01-0064-4

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
1,3-Dichloropropane	ND	1.0		ug/L
2,2-Dichloropropane	ND	1.0		ug/L
1,1-Dichloropropene	ND	1.0		ug/L
c-1,3-Dichloropropene	ND	0.5		ug/L
t-1,3-Dichloropropene	ND	0.5		ug/L
Ethylbenzene	ND	1.0		ug/L
2-Hexanone	ND	10		ug/L
Isopropylbenzene	ND	1.0		ug/L
p-Isopropyltoluene	ND	1.0		ug/L
Methylene Chloride	ND	10		ug/L
4-Methyl-2-Pentanone	ND	10		ug/L
Naphthalene	ND	10		ug/L
n-Propylbenzene	ND	1.0		ug/L
Styrene	ND	1.0		ug/L
1,1,1,2-Tetrachloroethane	ND	1.0		ug/L
1,1,2,2-Tetrachloroethane	ND	1.0		ug/L
Tetrachloroethene	ND	1.0		ug/L
Toluene	ND	1.0		ug/L
1,2,3-Trichlorobenzene	ND	1.0		ug/L
1,2,4-Trichlorobenzene	ND	1.0		ug/L
1,1,1-Trichloroethane	ND	1.0		ug/L
1,1,2-Trichloroethane	ND	1.0		ug/L
Trichloroethene	ND	1.0		ug/L
Trichlorofluoromethane	ND	10		ug/L
1,2,3-Trichloropropane	ND	1.0		ug/L
1,2,4-Trimethylbenzene	ND	1.0		ug/L
1,3,5-Trimethylbenzene	ND	1.0		ug/L
Vinyl Acetate	ND	10		ug/L
Vinyl Chloride	ND	0.5		ug/L
p/m-Xylene	ND	1.0		ug/L
o-Xylene	ND	1.0		ug/L
Methyl-tert-Butyl Ether	1.8	1.0		ug/L



ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 990107AW Date Collected: 01/06/99
Matrix: Aqueous Date Received: 01/06/99
Preparation: N/A Date Prepared: N/A
Method: EPA 8260B Date Analyzed: 01/07/99

Client Sample Number: P-11
Lab Sample Number: 99-01-0064-4

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Dibromofluoromethane	94	86-118	
Toluene-d8	99	88-110	
1,4-Bromofluorobenzene	97	86-115	



ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 990107AW
Matrix: Aqueous
Preparation: N/A
Method: EPA 8260B

Date Collected: 01/06/99
Date Received: 01/06/99
Date Prepared: N/A
Date Analyzed: 01/07/99

Client Sample Number: P-111
Lab Sample Number: 99-01-0064-8

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Acetone	ND	10		ug/L
Benzene	ND	0.5		ug/L
Bromobenzene	ND	1.0		ug/L
Bromochloromethane	ND	1.0		ug/L
Bromodichloromethane	ND	1.0		ug/L
Bromoform	ND	1.0		ug/L
Bromomethane	ND	1.0		ug/L
2-Butanone	ND	10		ug/L
n-Butylbenzene	ND	1.0		ug/L
sec-Butylbenzene	ND	1.0		ug/L
tert-Butylbenzene	ND	1.0		ug/L
Carbon Disulfide	ND	10		ug/L
Carbon Tetrachloride	ND	0.5		ug/L
Chlorobenzene	ND	1.0		ug/L
Chloroethane	ND	1.0		ug/L
Chloroform	ND	1.0		ug/L
Chloromethane	ND	1.0		ug/L
2-Chlorotoluene	ND	1.0		ug/L
4-Chlorotoluene	ND	1.0		ug/L
Dibromochloromethane	ND	1.0		ug/L
1,2-Dibromo-3-Chloropropane	ND	1.0		ug/L
1,2-Dibromoethane	ND	1.0		ug/L
Dibromomethane	ND	1.0		ug/L
1,2-Dichlorobenzene	ND	1.0		ug/L
1,3-Dichlorobenzene	ND	1.0		ug/L
1,4-Dichlorobenzene	ND	1.0		ug/L
Dichlorodifluoromethane	ND	1.0		ug/L
1,1-Dichloroethane	ND	1.0		ug/L
1,2-Dichloroethane	ND	0.5		ug/L
1,1-Dichloroethene	ND	1.0		ug/L
c-1,2-Dichloroethene	ND	1.0		ug/L
t-1,2-Dichloroethene	ND	1.0		ug/L
1,2-Dichloropropane	ND	1.0		ug/L



ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 990107AW
Matrix: Aqueous
Preparation: N/A
Method: EPA 8260B

Date Collected: 01/06/99
Date Received: 01/06/99
Date Prepared: N/A
Date Analyzed: 01/07/99

Client Sample Number: P-111
Lab Sample Number: 99-01-0064-8

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
1,3-Dichloropropane	ND	1.0		ug/L
2,2-Dichloropropane	ND	1.0		ug/L
1,1-Dichloropropene	ND	1.0		ug/L
c-1,3-Dichloropropene	ND	0.5		ug/L
t-1,3-Dichloropropene	ND	0.5		ug/L
Ethylbenzene	ND	1.0		ug/L
2-Hexanone	ND	10		ug/L
Isopropylbenzene	ND	1.0		ug/L
p-Isopropyltoluene	ND	1.0		ug/L
Methylene Chloride	ND	10		ug/L
4-Methyl-2-Pentanone	ND	10		ug/L
Naphthalene	ND	10		ug/L
n-Propylbenzene	ND	1.0		ug/L
Styrene	ND	1.0		ug/L
1,1,1,2-Tetrachloroethane	ND	1.0		ug/L
1,1,2,2-Tetrachloroethane	ND	1.0		ug/L
Tetrachloroethene	ND	1.0		ug/L
Toluene	ND	1.0		ug/L
1,2,3-Trichlorobenzene	ND	1.0		ug/L
1,2,4-Trichlorobenzene	ND	1.0		ug/L
1,1,1-Trichloroethane	ND	1.0		ug/L
1,1,2-Trichloroethane	ND	1.0		ug/L
Trichloroethene	ND	1.0		ug/L
Trichlorofluoromethane	ND	10		ug/L
1,2,3-Trichloropropane	ND	1.0		ug/L
1,2,4-Trimethylbenzene	ND	1.0		ug/L
1,3,5-Trimethylbenzene	ND	1.0		ug/L
Vinyl Acetate	ND	10		ug/L
Vinyl Chloride	ND	0.5		ug/L
p/m-Xylene	ND	1.0		ug/L
o-Xylene	ND	1.0		ug/L
Methyl-tert-Butyl Ether	1.0	1.0		ug/L



ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	990107AW	Date Collected:	01/06/99
Matrix:	Aqueous	Date Received:	01/06/99
Preparation:	N/A	Date Prepared:	N/A
Method:	EPA 8260B	Date Analyzed:	01/07/99

Client Sample Number: P-111
Lab Sample Number: 99-01-0064-8

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Dibromofluoromethane	93	86-118	
Toluene-d8	100	88-110	
1,4-Bromofluorobenzene	97	86-115	



ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 990107AW Date Collected: 01/06/99
Matrix: Aqueous Date Received: 01/06/99
Preparation: N/A Date Prepared: N/A
Method: EPA 8260B Date Analyzed: 01/07/99

Client Sample Number: W-A
Lab Sample Number: 99-01-0064-12

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Acetone	ND	10		ug/L
Benzene	ND	0.5		ug/L
Bromobenzene	ND	1.0		ug/L
Bromochloromethane	ND	1.0		ug/L
Bromodichloromethane	ND	1.0		ug/L
Bromoform	ND	1.0		ug/L
Bromomethane	ND	1.0		ug/L
2-Butanone	ND	10		ug/L
n-Butylbenzene	ND	1.0		ug/L
sec-Butylbenzene	ND	1.0		ug/L
tert-Butylbenzene	ND	1.0		ug/L
Carbon Disulfide	ND	10		ug/L
Carbon Tetrachloride	ND	0.5		ug/L
Chlorobenzene	ND	1.0		ug/L
Chloroethane	ND	1.0		ug/L
Chloroform	ND	1.0		ug/L
Chloromethane	ND	1.0		ug/L
2-Chlorotoluene	ND	1.0		ug/L
4-Chlorotoluene	ND	1.0		ug/L
Dibromochloromethane	ND	1.0		ug/L
1,2-Dibromo-3-Chloropropane	ND	1.0		ug/L
1,2-Dibromoethane	ND	1.0		ug/L
Dibromomethane	ND	1.0		ug/L
1,2-Dichlorobenzene	ND	1.0		ug/L
1,3-Dichlorobenzene	ND	1.0		ug/L
1,4-Dichlorobenzene	ND	1.0		ug/L
Dichlorodifluoromethane	ND	1.0		ug/L
1,1-Dichloroethane	ND	1.0		ug/L
1,2-Dichloroethane	ND	0.5		ug/L
1,1-Dichloroethene	ND	1.0		ug/L
c-1,2-Dichloroethene	ND	1.0		ug/L
t-1,2-Dichloroethene	ND	1.0		ug/L
1,2-Dichloropropane	ND	1.0		ug/L



ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 990107AW Date Collected: 01/06/99
Matrix: Aqueous Date Received: 01/06/99
Preparation: N/A Date Prepared: N/A
Method: EPA 8260B Date Analyzed: 01/07/99

Client Sample Number: W-A
Lab Sample Number: 99-01-0064-12

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
1,3-Dichloropropane	ND	1.0		ug/L
2,2-Dichloropropane	ND	1.0		ug/L
1,1-Dichloropropene	ND	1.0		ug/L
c-1,3-Dichloropropene	ND	0.5		ug/L
t-1,3-Dichloropropene	ND	0.5		ug/L
Ethylbenzene	ND	1.0		ug/L
2-Hexanone	ND	10		ug/L
Isopropylbenzene	ND	1.0		ug/L
p-Isopropyltoluene	ND	1.0		ug/L
Methylene Chloride	ND	10		ug/L
4-Methyl-2-Pentanone	ND	10		ug/L
Naphthalene	ND	10		ug/L
n-Propylbenzene	ND	1.0		ug/L
Styrene	ND	1.0		ug/L
1,1,1,2-Tetrachloroethane	ND	1.0		ug/L
1,1,2,2-Tetrachloroethane	ND	1.0		ug/L
Tetrachloroethene	ND	1.0		ug/L
Toluene	ND	1.0		ug/L
1,2,3-Trichlorobenzene	ND	1.0		ug/L
1,2,4-Trichlorobenzene	ND	1.0		ug/L
1,1,1-Trichloroethane	ND	1.0		ug/L
1,1,2-Trichloroethane	ND	1.0		ug/L
Trichloroethene	ND	1.0		ug/L
Trichlorofluoromethane	ND	10		ug/L
1,2,3-Trichloropropane	ND	1.0		ug/L
1,2,4-Trimethylbenzene	ND	1.0		ug/L
1,3,5-Trimethylbenzene	ND	1.0		ug/L
Vinyl Acetate	ND	10		ug/L
Vinyl Chloride	ND	0.5		ug/L
p/m-Xylene	ND	1.0		ug/L
o-Xylene	ND	1.0		ug/L
Methyl-tert-Butyl Ether	ND	1.0		ug/L



ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 990107AW Date Collected: 01/06/99
Matrix: Aqueous Date Received: 01/06/99
Preparation: N/A Date Prepared: N/A
Method: EPA 8260B Date Analyzed: 01/07/99

Client Sample Number: W-A
Lab Sample Number: 99-01-0064-12

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Dibromofluoromethane	94	86-118	
Toluene-d8	99	88-110	
1,4-Bromofluorobenzene	98	86-115	



ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 990107AW Date Collected: 01/06/99
Matrix: Aqueous Date Received: 01/06/99
Preparation: N/A Date Prepared: N/A
Method: EPA 8260B Date Analyzed: 01/07/99

Client Sample Number: EB-1
Lab Sample Number: 99-01-0064-16

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Acetone	ND	10		ug/L
Benzene	ND	0.5		ug/L
Bromobenzene	ND	1.0		ug/L
Bromochloromethane	ND	1.0		ug/L
Bromodichloromethane	ND	1.0		ug/L
Bromoform	ND	1.0		ug/L
Bromomethane	ND	1.0		ug/L
2-Butanone	ND	10		ug/L
n-Butylbenzene	ND	1.0		ug/L
sec-Butylbenzene	ND	1.0		ug/L
tert-Butylbenzene	ND	1.0		ug/L
Carbon Disulfide	ND	10		ug/L
Carbon Tetrachloride	ND	0.5		ug/L
Chlorobenzene	ND	1.0		ug/L
Chloroethane	ND	1.0		ug/L
Chloroform	ND	1.0		ug/L
Chloromethane	ND	1.0		ug/L
2-Chlorotoluene	ND	1.0		ug/L
4-Chlorotoluene	ND	1.0		ug/L
Dibromochloromethane	ND	1.0		ug/L
1,2-Dibromo-3-Chloropropane	ND	1.0		ug/L
1,2-Dibromoethane	ND	1.0		ug/L
Dibromomethane	ND	1.0		ug/L
1,2-Dichlorobenzene	ND	1.0		ug/L
1,3-Dichlorobenzene	ND	1.0		ug/L
1,4-Dichlorobenzene	ND	1.0		ug/L
Dichlorodifluoromethane	ND	1.0		ug/L
1,1-Dichloroethane	ND	1.0		ug/L
1,2-Dichloroethane	ND	0.5		ug/L
1,1-Dichloroethene	ND	1.0		ug/L
c-1,2-Dichloroethene	ND	1.0		ug/L
t-1,2-Dichloroethene	ND	1.0		ug/L
1,2-Dichloropropane	ND	1.0		ug/L



ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 990107AW Date Collected: 01/06/99
Matrix: Aqueous Date Received: 01/06/99
Preparation: N/A Date Prepared: N/A
Method: EPA 8260B Date Analyzed: 01/07/99

Client Sample Number: EB-1
Lab Sample Number: 99-01-0064-16

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
1,3-Dichloropropane	ND	1.0		ug/L
2,2-Dichloropropane	ND	1.0		ug/L
1,1-Dichloropropene	ND	1.0		ug/L
c-1,3-Dichloropropene	ND	0.5		ug/L
t-1,3-Dichloropropene	ND	0.5		ug/L
Ethylbenzene	ND	1.0		ug/L
2-Hexanone	ND	10		ug/L
Isopropylbenzene	ND	1.0		ug/L
p-Isopropyltoluene	ND	1.0		ug/L
Methylene Chloride	ND	10		ug/L
4-Methyl-2-Pentanone	ND	10		ug/L
Naphthalene	ND	10		ug/L
n-Propylbenzene	ND	1.0		ug/L
Styrene	ND	1.0		ug/L
1,1,1,2-Tetrachloroethane	ND	1.0		ug/L
1,1,2,2-Tetrachloroethane	ND	1.0		ug/L
Tetrachloroethene	ND	1.0		ug/L
Toluene	ND	1.0		ug/L
1,2,3-Trichlorobenzene	ND	1.0		ug/L
1,2,4-Trichlorobenzene	ND	1.0		ug/L
1,1,1-Trichloroethane	ND	1.0		ug/L
1,1,2-Trichloroethane	ND	1.0		ug/L
Trichloroethene	ND	1.0		ug/L
Trichlorofluoromethane	ND	10		ug/L
1,2,3-Trichloropropane	ND	1.0		ug/L
1,2,4-Trimethylbenzene	ND	1.0		ug/L
1,3,5-Trimethylbenzene	ND	1.0		ug/L
Vinyl Acetate	ND	10		ug/L
Vinyl Chloride	ND	0.5		ug/L
p/m-Xylene	ND	1.0		ug/L
o-Xylene	ND	1.0		ug/L
Methyl-tert-Butyl Ether	ND	1.0		ug/L



ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	990107AW	Date Collected:	01/06/99
Matrix:	Aqueous	Date Received:	01/06/99
Preparation:	N/A	Date Prepared:	N/A
Method:	EPA 8260B	Date Analyzed:	01/07/99

Client Sample Number: EB-1
Lab Sample Number: 99-01-0064-16

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Dibromofluoromethane	92	86-118	
Toluene-d8	99	88-110	
1,4-Bromofluorobenzene	96	86-115	



ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 990107AW
Matrix: Aqueous
Preparation: N/A
Method: EPA 8260B

Date Collected: 01/06/99
Date Received: 01/06/99
Date Prepared: N/A
Date Analyzed: 01/07/99

Client Sample Number: TB-0101
Lab Sample Number: 99-01-0064-17

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Acetone	ND	10		ug/L
Benzene	ND	0.5		ug/L
Bromobenzene	ND	1.0		ug/L
Bromochloromethane	ND	1.0		ug/L
Bromodichloromethane	ND	1.0		ug/L
Bromoform	ND	1.0		ug/L
Bromomethane	ND	1.0		ug/L
2-Butanone	ND	10		ug/L
n-Butylbenzene	ND	1.0		ug/L
sec-Butylbenzene	ND	1.0		ug/L
tert-Butylbenzene	ND	1.0		ug/L
Carbon Disulfide	ND	10		ug/L
Carbon Tetrachloride	ND	0.5		ug/L
Chlorobenzene	ND	1.0		ug/L
Chloroethane	ND	1.0		ug/L
Chloroform	ND	1.0		ug/L
Chloromethane	ND	1.0		ug/L
2-Chlorotoluene	ND	1.0		ug/L
4-Chlorotoluene	ND	1.0		ug/L
Dibromochloromethane	ND	1.0		ug/L
1,2-Dibromo-3-Chloropropane	ND	1.0		ug/L
1,2-Dibromoethane	ND	1.0		ug/L
Dibromomethane	ND	1.0		ug/L
1,2-Dichlorobenzene	ND	1.0		ug/L
1,3-Dichlorobenzene	ND	1.0		ug/L
1,4-Dichlorobenzene	ND	1.0		ug/L
Dichlorodifluoromethane	ND	1.0		ug/L
1,1-Dichloroethane	ND	1.0		ug/L
1,2-Dichloroethane	ND	0.5		ug/L
1,1-Dichloroethene	ND	1.0		ug/L
c-1,2-Dichloroethene	ND	1.0		ug/L
t-1,2-Dichloroethene	ND	1.0		ug/L
1,2-Dichloropropane	ND	1.0		ug/L

ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	990107AW	Date Collected:	01/06/99
Matrix:	Aqueous	Date Received:	01/06/99
Preparation:	N/A	Date Prepared:	N/A
Method:	EPA 8260B	Date Analyzed:	01/07/99

Client Sample Number: TB-0101
Lab Sample Number: 99-01-0064-17

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
1,3-Dichloropropane	ND	1.0		ug/L
2,2-Dichloropropane	ND	1.0		ug/L
1,1-Dichloropropene	ND	1.0		ug/L
c-1,3-Dichloropropene	ND	0.5		ug/L
t-1,3-Dichloropropene	ND	0.5		ug/L
Ethylbenzene	ND	1.0		ug/L
2-Hexanone	ND	10		ug/L
Isopropylbenzene	ND	1.0		ug/L
p-Isopropyltoluene	ND	1.0		ug/L
Methylene Chloride	ND	10		ug/L
4-Methyl-2-Pentanone	ND	10		ug/L
Naphthalene	ND	10		ug/L
n-Propylbenzene	ND	1.0		ug/L
Styrene	ND	1.0		ug/L
1,1,1,2-Tetrachloroethane	ND	1.0		ug/L
1,1,2,2-Tetrachloroethane	ND	1.0		ug/L
Tetrachloroethene	ND	1.0		ug/L
Toluene	ND	1.0		ug/L
1,2,3-Trichlorobenzene	ND	1.0		ug/L
1,2,4-Trichlorobenzene	ND	1.0		ug/L
1,1,1-Trichloroethane	ND	1.0		ug/L
1,1,2-Trichloroethane	ND	1.0		ug/L
Trichloroethene	ND	1.0		ug/L
Trichlorofluoromethane	ND	10		ug/L
1,2,3-Trichloropropane	ND	1.0		ug/L
1,2,4-Trimethylbenzene	ND	1.0		ug/L
1,3,5-Trimethylbenzene	ND	1.0		ug/L
Vinyl Acetate	ND	10		ug/L
Vinyl Chloride	ND	0.5		ug/L
p/m-Xylene	ND	1.0		ug/L
o-Xylene	ND	1.0		ug/L
Methyl-tert-Butyl Ether	ND	1.0		ug/L



ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name:	Woodward-Clyde Consultants
Project ID:	POLB-Naval Shipyard
Work Order Number:	99-01-0064
QC Batch ID:	990107AW
Matrix:	Aqueous
Preparation:	N/A
Method:	EPA 8260B
	Date Collected: 01/06/99
	Date Received: 01/06/99
	Date Prepared: N/A
	Date Analyzed: 01/07/99

Client Sample Number: TB-0101
Lab Sample Number: 99-01-0064-17

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Dibromofluoromethane	93	86-118	
Toluene-d8	100	88-110	
1,4-Bromofluorobenzene	97	86-115	



ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 990107AW
Matrix: Aqueous
Preparation: N/A
Method: EPA 8260B

Date Collected: N/A
Date Received: N/A
Date Prepared: N/A
Date Analyzed: 01/07/99

Client Sample Number: Method Blank
Lab Sample Number: 095-01-026-964

Parameter	Result	RL	Qualifiers	Units
Acetone	ND	10		ug/L
Benzene	ND	0.5		ug/L
Bromobenzene	ND	1.0		ug/L
Bromochloromethane	ND	1.0		ug/L
Bromodichloromethane	ND	1.0		ug/L
Bromoform	ND	1.0		ug/L
Bromomethane	ND	1.0		ug/L
2-Butanone	ND	10		ug/L
n-Butylbenzene	ND	1.0		ug/L
sec-Butylbenzene	ND	1.0		ug/L
tert-Butylbenzene	ND	1.0		ug/L
Carbon Disulfide	ND	10		ug/L
Carbon Tetrachloride	ND	0.5		ug/L
Chlorobenzene	ND	1.0		ug/L
Chloroethane	ND	1.0		ug/L
Chloroform	ND	1.0		ug/L
Chloromethane	ND	1.0		ug/L
2-Chlorotoluene	ND	1.0		ug/L
4-Chlorotoluene	ND	1.0		ug/L
Dibromochloromethane	ND	1.0		ug/L
1,2-Dibromo-3-Chloropropane	ND	1.0		ug/L
1,2-Dibromoethane	ND	1.0		ug/L
Dibromomethane	ND	1.0		ug/L
1,2-Dichlorobenzene	ND	1.0		ug/L
1,3-Dichlorobenzene	ND	1.0		ug/L
1,4-Dichlorobenzene	ND	1.0		ug/L
Dichlorodifluoromethane	ND	1.0		ug/L
1,1-Dichloroethane	ND	1.0		ug/L
1,2-Dichloroethane	ND	0.5		ug/L
1,1-Dichloroethene	ND	1.0		ug/L
c-1,2-Dichloroethene	ND	1.0		ug/L
t-1,2-Dichloroethene	ND	1.0		ug/L
1,2-Dichloropropane	ND	1.0		ug/L



ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 990107AW
Matrix: Aqueous
Preparation: N/A
Method: EPA 8260B

Date Collected: N/A
Date Received: N/A
Date Prepared: N/A
Date Analyzed: 01/07/99

Client Sample Number: Method Blank
Lab Sample Number: 095-01-026-964

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
1,3-Dichloropropane	ND	1.0		ug/L
2,2-Dichloropropane	ND	1.0		ug/L
1,1-Dichloropropene	ND	1.0		ug/L
c-1,3-Dichloropropene	ND	0.5		ug/L
t-1,3-Dichloropropene	ND	0.5		ug/L
Ethylbenzene	ND	1.0		ug/L
2-Hexanone	ND	10		ug/L
Isopropylbenzene	ND	1.0		ug/L
p-Isopropyltoluene	ND	1.0		ug/L
Methylene Chloride	ND	10		ug/L
4-Methyl-2-Pentanone	ND	10		ug/L
Naphthalene	ND	10		ug/L
n-Propylbenzene	ND	1.0		ug/L
Styrene	ND	1.0		ug/L
1,1,1,2-Tetrachloroethane	ND	1.0		ug/L
1,1,2,2-Tetrachloroethane	ND	1.0		ug/L
Tetrachloroethene	ND	1.0		ug/L
Toluene	ND	1.0		ug/L
1,2,3-Trichlorobenzene	ND	1.0		ug/L
1,2,4-Trichlorobenzene	ND	1.0		ug/L
1,1,1-Trichloroethane	ND	1.0		ug/L
1,1,2-Trichloroethane	ND	1.0		ug/L
Trichloroethene	ND	1.0		ug/L
Trichlorofluoromethane	ND	10		ug/L
1,2,3-Trichloropropane	ND	1.0		ug/L
1,2,4-Trimethylbenzene	ND	1.0		ug/L
1,3,5-Trimethylbenzene	ND	1.0		ug/L
Vinyl Acetate	ND	10		ug/L
Vinyl Chloride	ND	0.5		ug/L
p/m-Xylene	ND	1.0		ug/L
o-Xylene	ND	1.0		ug/L
Methyl-tert-Butyl Ether	ND	1.0		ug/L



ANALYTICAL REPORT
EPA 8260B Volatile Organics

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	990107AW	Date Collected:	N/A
Matrix:	Aqueous	Date Received:	N/A
Preparation:	N/A	Date Prepared:	N/A
Method:	EPA 8260B	Date Analyzed:	01/07/99

Client Sample Number: Method Blank
Lab Sample Number: 095-01-026-964

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Dibromofluoromethane	94	86-118	
Toluene-d8	99	88-110	
1,4-Bromofluorobenzene	97	86-115	



ANALYTICAL REPORT
EPA 8270C Semi-Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 9901065 Date Collected: 01/06/99
Matrix: Solid Date Received: 01/06/99
Preparation: EPA 3540B Date Prepared: 01/06/99
Method: EPA 8270C Date Analyzed: 01/07/99

Client Sample Number: P-11-3-5
Lab Sample Number: 99-01-0064-1

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
N-Nitrosodimethylamine	ND	1.0		mg/kg
Aniline	ND	1.0		mg/kg
Phenol	ND	1.0		mg/kg
Bis(2-Chloroethyl) Ether	ND	5.0		mg/kg
2-Chlorophenol	ND	1.0		mg/kg
1,3-Dichlorobenzene	ND	1.0		mg/kg
1,4-Dichlorobenzene	ND	1.0		mg/kg
Benzyl Alcohol	ND	1.0		mg/kg
1,2-Dichlorobenzene	ND	1.0		mg/kg
2-Methylphenol	ND	1.0		mg/kg
Bis(2-Chloroisopropyl) Ether	ND	1.0		mg/kg
4-Methylphenol	ND	1.0		mg/kg
N-Nitroso-di-n-propylamine	ND	1.0		mg/kg
Hexachloroethane	ND	1.0		mg/kg
Nitrobenzene	ND	5.0		mg/kg
Isophorone	ND	1.0		mg/kg
2-Nitrophenol	ND	1.0		mg/kg
2,4-Dimethylphenol	ND	1.0		mg/kg
Benzoic Acid	ND	5.0		mg/kg
Bis(2-Chloroethoxy) Methane	ND	1.0		mg/kg
2,4-Dichlorophenol	ND	1.0		mg/kg
1,2,4-Trichlorobenzene	ND	1.0		mg/kg
Naphthalene	ND	1.0		mg/kg
4-Chloroaniline	ND	1.0		mg/kg
Hexachloro-1,3-Butadiene	ND	1.0		mg/kg
4-Chloro-3-Methylphenol	ND	1.0		mg/kg
2-Methylnaphthalene	ND	1.0		mg/kg
1-Methylnaphthalene	ND	1.0		mg/kg
Hexachlorocyclopentadiene	ND	1.0		mg/kg
2,4,5-Trichlorophenol	ND	1.0		mg/kg
2-Chloronaphthalene	ND	1.0		mg/kg
2-Nitroaniline	ND	1.0		mg/kg
Dimethyl Phthalate	ND	1.0		mg/kg



ANALYTICAL REPORT
EPA 8270C Semi-Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 9901065 Date Collected: 01/06/99
Matrix: Solid Date Received: 01/06/99
Preparation: EPA 3540B Date Prepared: 01/06/99
Method: EPA 8270C Date Analyzed: 01/07/99

Client Sample Number: P-11-3-5
Lab Sample Number: 99-01-0064-1

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Acenaphthylene	ND	1.0		mg/kg
3-Nitroaniline	ND	1.0		mg/kg
Acenaphthene	ND	1.0		mg/kg
2,4-Dinitrophenol	ND	5.0		mg/kg
4-Nitrophenol	ND	1.0		mg/kg
Dibenzofuran	ND	1.0		mg/kg
2,4-Dinitrotoluene	ND	1.0		mg/kg
2,6-Dinitrotoluene	ND	1.0		mg/kg
Diethyl Phthalate	ND	1.0		mg/kg
4-Chlorophenyl-Phenyl Ether	ND	1.0		mg/kg
Fluorene	ND	1.0		mg/kg
4-Nitroaniline	ND	1.0		mg/kg
Azobenzene	ND	1.0		mg/kg
4,6-Dinitro-2-Methylphenol	ND	5.0		mg/kg
N-Nitrosodiphenylamine	ND	1.0		mg/kg
2,4,6-Trichlorophenol	ND	1.0		mg/kg
4-Bromophenyl-Phenyl Ether	ND	1.0		mg/kg
Hexachlorobenzene	ND	1.0		mg/kg
Pentachlorophenol	ND	5.0		mg/kg
Phenanthrene	ND	1.0		mg/kg
Anthracene	ND	1.0		mg/kg
Di-n-Butyl Phthalate	ND	1.0		mg/kg
Fluoranthene	ND	1.0		mg/kg
Benzidine	ND	5.0		mg/kg
Pyrene	ND	1.0		mg/kg
Pyridine	ND	1.0		mg/kg
Butyl Benzyl Phthalate	ND	1.0		mg/kg
3,3'-Dichlorobenzidine	ND	1.0		mg/kg
Benzo (a) Anthracene	ND	1.0		mg/kg
Bis(2-Ethylhexyl) Phthalate	ND	1.0		mg/kg
Chrysene	ND	1.0		mg/kg
Di-n-Octyl Phthalate	ND	1.0		mg/kg
Benzo (b) Fluoranthene	ND	1.0		mg/kg



ANALYTICAL REPORT
EPA 8270C Semi-Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 9901065 Date Collected: 01/06/99
Matrix: Solid Date Received: 01/06/99
Preparation: EPA 3540B Date Prepared: 01/06/99
Method: EPA 8270C Date Analyzed: 01/07/99

Client Sample Number: P-11-3-5
Lab Sample Number: 99-01-0064-1

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Benzo (k) Fluoranthene	ND	1.0		mg/kg
Benzo (a) Pyrene	ND	1.0		mg/kg
Indeno (1,2,3-c,d) Pyrene	ND	1.0		mg/kg
Dibenz (a,h) Anthracene	ND	1.0		mg/kg
Benzo (g,h,i) Perylene	ND	1.0		mg/kg

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
2-Fluorophenol	98	25-121	
Phenol-d6	97	24-113	
Nitrobenzene-d5	94	23-120	
2-Fluorobiphenyl	99	30-115	
2,4,6-Tribromophenol	98	19-122	
p-Terphenyl-d14	81	18-137	



ANALYTICAL REPORT
EPA 8270C Semi-Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 9901065 Date Collected: 01/06/99
Matrix: Solid Date Received: 01/06/99
Preparation: EPA 3540B Date Prepared: 01/06/99
Method: EPA 8270C Date Analyzed: 01/07/99

Client Sample Number: P-111-3-5
Lab Sample Number: 99-01-0064-5

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
N-Nitrosodimethylamine	ND	1.0		mg/kg
Aniline	ND	1.0		mg/kg
Phenol	ND	1.0		mg/kg
Bis(2-Chloroethyl) Ether	ND	5.0		mg/kg
2-Chlorophenol	ND	1.0		mg/kg
1,3-Dichlorobenzene	ND	1.0		mg/kg
1,4-Dichlorobenzene	ND	1.0		mg/kg
Benzyl Alcohol	ND	1.0		mg/kg
1,2-Dichlorobenzene	ND	1.0		mg/kg
2-Methylphenol	ND	1.0		mg/kg
Bis(2-Chloroisopropyl) Ether	ND	1.0		mg/kg
4-Methylphenol	ND	1.0		mg/kg
N-Nitroso-di-n-propylamine	ND	1.0		mg/kg
Hexachloroethane	ND	1.0		mg/kg
Nitrobenzene	ND	5.0		mg/kg
Isophorone	ND	1.0		mg/kg
2-Nitrophenol	ND	1.0		mg/kg
2,4-Dimethylphenol	ND	1.0		mg/kg
Benzoic Acid	ND	5.0		mg/kg
Bis(2-Chloroethoxy) Methane	ND	1.0		mg/kg
2,4-Dichlorophenol	ND	1.0		mg/kg
1,2,4-Trichlorobenzene	ND	1.0		mg/kg
Naphthalene	ND	1.0		mg/kg
4-Chloroaniline	ND	1.0		mg/kg
Hexachloro-1,3-Butadiene	ND	1.0		mg/kg
4-Chloro-3-Methylphenol	ND	1.0		mg/kg
2-Methylnaphthalene	ND	1.0		mg/kg
1-Methylnaphthalene	ND	1.0		mg/kg
Hexachlorocyclopentadiene	ND	1.0		mg/kg
2,4,5-Trichlorophenol	ND	1.0		mg/kg
2-Chloronaphthalene	ND	1.0		mg/kg
2-Nitroaniline	ND	1.0		mg/kg
Dimethyl Phthalate	ND	1.0		mg/kg



ANALYTICAL REPORT
EPA 8270C Semi-Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 9901065 Date Collected: 01/06/99
Matrix: Solid Date Received: 01/06/99
Preparation: EPA 3540B Date Prepared: 01/06/99
Method: EPA 8270C Date Analyzed: 01/07/99

Client Sample Number: P-111-3-5
Lab Sample Number: 99-01-0064-5

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Acenaphthylene	ND	1.0		mg/kg
3-Nitroaniline	ND	1.0		mg/kg
Acenaphthene	ND	1.0		mg/kg
2,4-Dinitrophenol	ND	5.0		mg/kg
4-Nitrophenol	ND	1.0		mg/kg
Dibenzofuran	ND	1.0		mg/kg
2,4-Dinitrotoluene	ND	1.0		mg/kg
2,6-Dinitrotoluene	ND	1.0		mg/kg
Diethyl Phthalate	ND	1.0		mg/kg
4-Chlorophenyl-Phenyl Ether	ND	1.0		mg/kg
Fluorene	ND	1.0		mg/kg
4-Nitroaniline	ND	1.0		mg/kg
Azobenzene	ND	1.0		mg/kg
4,6-Dinitro-2-Methylphenol	ND	5.0		mg/kg
N-Nitrosodiphenylamine	ND	1.0		mg/kg
2,4,6-Trichlorophenol	ND	1.0		mg/kg
4-Bromophenyl-Phenyl Ether	ND	1.0		mg/kg
Hexachlorobenzene	ND	1.0		mg/kg
Pentachlorophenol	ND	5.0		mg/kg
Phenanthrene	ND	1.0		mg/kg
Anthracene	ND	1.0		mg/kg
Di-n-Butyl Phthalate	ND	1.0		mg/kg
Fluoranthene	ND	1.0		mg/kg
Benzidine	ND	5.0		mg/kg
Pyrene	ND	1.0		mg/kg
Pyridine	ND	1.0		mg/kg
Butyl Benzyl Phthalate	ND	1.0		mg/kg
3,3'-Dichlorobenzidine	ND	1.0		mg/kg
Benzo (a) Anthracene	ND	1.0		mg/kg
Bis(2-Ethylhexyl) Phthalate	ND	1.0		mg/kg
Chrysene	ND	1.0		mg/kg
Di-n-Octyl Phthalate	ND	1.0		mg/kg
Benzo (b) Fluoranthene	ND	1.0		mg/kg



ANALYTICAL REPORT
EPA 8270C Semi-Volatile Organics

Client Name: Woodward-Clyde Consultants

Project ID: POLB-Naval Shipyard

Work Order Number: 99-01-0064

QC Batch ID: 9901065

Date Collected: 01/06/99

Matrix: Solid

Date Received: 01/06/99

Preparation: EPA 3540B

Date Prepared: 01/06/99

Method: EPA 8270C

Date Analyzed: 01/07/99

Client Sample Number: P-111-3-5

Lab Sample Number: 99-01-0064-5

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Benzo (k) Fluoranthene	ND	1.0		mg/kg
Benzo (a) Pyrene	ND	1.0		mg/kg
Indeno (1,2,3-c,d) Pyrene	ND	1.0		mg/kg
Dibenz (a,h) Anthracene	ND	1.0		mg/kg
Benzo (g,h,i) Perylene	ND	1.0		mg/kg

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
2-Fluorophenol	94	25-121	
Phenol-d6	97	24-113	
Nitrobenzene-d5	94	23-120	
2-Fluorobiphenyl	96	30-115	
2,4,6-Tribromophenol	97	19-122	
p-Terphenyl-d14	80	18-137	

ANALYTICAL REPORT
EPA 8270C Semi-Volatile Organics

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	9901065	Date Collected:	01/06/99
Matrix:	Solid	Date Received:	01/06/99
Preparation:	EPA 3540B	Date Prepared:	01/06/99
Method:	EPA 8270C	Date Analyzed:	01/07/99

Client Sample Number: W-A-5-7
Lab Sample Number: 99-01-0064-10

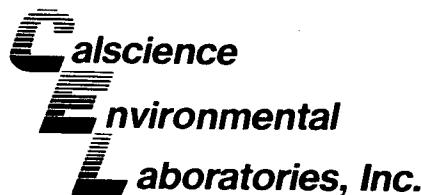
<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
N-Nitrosodimethylamine	ND	1.0		mg/kg
Aniline	ND	1.0		mg/kg
Phenol	ND	1.0		mg/kg
Bis(2-Chloroethyl) Ether	ND	5.0		mg/kg
2-Chlorophenol	ND	1.0		mg/kg
1,3-Dichlorobenzene	ND	1.0		mg/kg
1,4-Dichlorobenzene	ND	1.0		mg/kg
Benzyl Alcohol	ND	1.0		mg/kg
1,2-Dichlorobenzene	ND	1.0		mg/kg
2-Methylphenol	ND	1.0		mg/kg
Bis(2-Chloroisopropyl) Ether	ND	1.0		mg/kg
4-Methylphenol	ND	1.0		mg/kg
N-Nitroso-di-n-propylamine	ND	1.0		mg/kg
Hexachloroethane	ND	1.0		mg/kg
Nitrobenzene	ND	5.0		mg/kg
Isophorone	ND	1.0		mg/kg
2-Nitrophenol	ND	1.0		mg/kg
2,4-Dimethylphenol	ND	1.0		mg/kg
Benzoic Acid	ND	5.0		mg/kg
Bis(2-Chloroethoxy) Methane	ND	1.0		mg/kg
2,4-Dichlorophenol	ND	1.0		mg/kg
1,2,4-Trichlorobenzene	ND	1.0		mg/kg
Naphthalene	ND	1.0		mg/kg
4-Chloroaniline	ND	1.0		mg/kg
Hexachloro-1,3-Butadiene	ND	1.0		mg/kg
4-Chloro-3-Methylphenol	ND	1.0		mg/kg
2-Methylnaphthalene	ND	1.0		mg/kg
1-Methylnaphthalene	ND	1.0		mg/kg
Hexachlorocyclopentadiene	ND	1.0		mg/kg
2,4,5-Trichlorophenol	ND	1.0		mg/kg
2-Chloronaphthalene	ND	1.0		mg/kg
2-Nitroaniline	ND	1.0		mg/kg
Dimethyl Phthalate	ND	1.0		mg/kg

ANALYTICAL REPORT
EPA 8270C Semi-Volatile Organics

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	9901065	Date Collected:	01/06/99
Matrix:	Solid	Date Received:	01/06/99
Preparation:	EPA 3540B	Date Prepared:	01/06/99
Method:	EPA 8270C	Date Analyzed:	01/07/99

Client Sample Number: W-A-5-7
Lab Sample Number: 99-01-0064-10

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Acenaphthylene	ND	1.0		mg/kg
3-Nitroaniline	ND	1.0		mg/kg
Acenaphthene	ND	1.0		mg/kg
2,4-Dinitrophenol	ND	5.0		mg/kg
4-Nitrophenol	ND	1.0		mg/kg
Dibenzofuran	ND	1.0		mg/kg
2,4-Dinitrotoluene	ND	1.0		mg/kg
2,6-Dinitrotoluene	ND	1.0		mg/kg
Diethyl Phthalate	ND	1.0		mg/kg
4-Chlorophenyl-Phenyl Ether	ND	1.0		mg/kg
Fluorene	ND	1.0		mg/kg
4-Nitroaniline	ND	1.0		mg/kg
Azobenzene	ND	1.0		mg/kg
4,6-Dinitro-2-Methylphenol	ND	5.0		mg/kg
N-Nitrosodiphenylamine	ND	1.0		mg/kg
2,4,6-Trichlorophenol	ND	1.0		mg/kg
4-Bromophenyl-Phenyl Ether	ND	1.0		mg/kg
Hexachlorobenzene	ND	1.0		mg/kg
Pentachlorophenol	ND	5.0		mg/kg
Phenanthrene	ND	1.0		mg/kg
Anthracene	ND	1.0		mg/kg
Di-n-Butyl Phthalate	ND	1.0		mg/kg
Fluoranthene	ND	1.0		mg/kg
Benzidine	ND	5.0		mg/kg
Pyrene	ND	1.0		mg/kg
Pyridine	ND	1.0		mg/kg
Butyl Benzyl Phthalate	ND	1.0		mg/kg
3,3'-Dichlorobenzidine	ND	1.0		mg/kg
Benzo (a) Anthracene	ND	1.0		mg/kg
Bis(2-Ethylhexyl) Phthalate	ND	1.0		mg/kg
Chrysene	ND	1.0		mg/kg
Di-n-Octyl Phthalate	ND	1.0		mg/kg
Benzo (b) Fluoranthene	ND	1.0		mg/kg



ANALYTICAL REPORT
EPA 8270C Semi-Volatile Organics

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	9901065	Date Collected:	01/06/99
Matrix:	Solid	Date Received:	01/06/99
Preparation:	EPA 3540B	Date Prepared:	01/06/99
Method:	EPA 8270C	Date Analyzed:	01/07/99

Client Sample Number: W-A-5-7
Lab Sample Number: 99-01-0064-10

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Benzo (k) Fluoranthene	ND	1.0		mg/kg
Benzo (a) Pyrene	ND	1.0		mg/kg
Indeno (1,2,3-c,d) Pyrene	ND	1.0		mg/kg
Dibenz (a,h) Anthracene	ND	1.0		mg/kg
Benzo (g,h,i) Perylene	ND	1.0		mg/kg

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
2-Fluorophenol	93	25-121	
Phenol-d6	98	24-113	
Nitrobenzene-d5	93	23-120	
2-Fluorobiphenyl	98	30-115	
2,4,6-Tribromophenol	100	19-122	
p-Terphenyl-d14	82	18-137	

ANALYTICAL REPORT
EPA 8270C Semi-Volatile Organics

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	9901065	Date Collected:	01/06/99
Matrix:	Solid	Date Received:	01/06/99
Preparation:	EPA 3540B	Date Prepared:	01/06/99
Method:	EPA 8270C	Date Analyzed:	01/07/99

Client Sample Number: P-11 SUMP
Lab Sample Number: 99-01-0064-18

Parameter	Result	RL	Qualifiers	Units
N-Nitrosodimethylamine	ND	1.0		mg/kg
Aniline	ND	1.0		mg/kg
Phenol	ND	1.0		mg/kg
Bis(2-Chloroethyl) Ether	ND	5.0		mg/kg
2-Chlorophenol	ND	1.0		mg/kg
1,3-Dichlorobenzene	ND	1.0		mg/kg
1,4-Dichlorobenzene	ND	1.0		mg/kg
Benzyl Alcohol	ND	1.0		mg/kg
1,2-Dichlorobenzene	ND	1.0		mg/kg
2-Methylphenol	ND	1.0		mg/kg
Bis(2-Chloroisopropyl) Ether	ND	1.0		mg/kg
4-Methylphenol	ND	1.0		mg/kg
N-Nitroso-di-n-propylamine	ND	1.0		mg/kg
Hexachloroethane	ND	1.0		mg/kg
Nitrobenzene	ND	5.0		mg/kg
Isophorone	ND	1.0		mg/kg
2-Nitrophenol	ND	1.0		mg/kg
2,4-Dimethylphenol	ND	1.0		mg/kg
Benzoic Acid	ND	5.0		mg/kg
Bis(2-Chloroethoxy) Methane	ND	1.0		mg/kg
2,4-Dichlorophenol	ND	1.0		mg/kg
1,2,4-Trichlorobenzene	ND	1.0		mg/kg
Naphthalene	ND	1.0		mg/kg
4-Chloroaniline	ND	1.0		mg/kg
Hexachloro-1,3-Butadiene	ND	1.0		mg/kg
4-Chloro-3-Methylphenol	ND	1.0		mg/kg
2-Methylnaphthalene	ND	1.0		mg/kg
1-Methylnaphthalene	ND	1.0		mg/kg
Hexachlorocyclopentadiene	ND	1.0		mg/kg
2,4,5-Trichlorophenol	ND	1.0		mg/kg
2-Chloronaphthalene	ND	1.0		mg/kg
2-Nitroaniline	ND	1.0		mg/kg
Dimethyl Phthalate	ND	1.0		mg/kg



ANALYTICAL REPORT
EPA 8270C Semi-Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 9901065 Date Collected: 01/06/99
Matrix: Solid Date Received: 01/06/99
Preparation: EPA 3540B Date Prepared: 01/06/99
Method: EPA 8270C Date Analyzed: 01/07/99

Client Sample Number: P-11 SUMP
Lab Sample Number: 99-01-0064-18

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Acenaphthylene	ND	1.0		mg/kg
3-Nitroaniline	ND	1.0		mg/kg
Acenaphthene	ND	1.0		mg/kg
2,4-Dinitrophenol	ND	5.0		mg/kg
4-Nitrophenol	ND	1.0		mg/kg
Dibenzofuran	ND	1.0		mg/kg
2,4-Dinitrotoluene	ND	1.0		mg/kg
2,6-Dinitrotoluene	ND	1.0		mg/kg
Diethyl Phthalate	ND	1.0		mg/kg
4-Chlorophenyl-Phenyl Ether	ND	1.0		mg/kg
Fluorene	ND	1.0		mg/kg
4-Nitroaniline	ND	1.0		mg/kg
Azobenzene	ND	1.0		mg/kg
4,6-Dinitro-2-Methylphenol	ND	5.0		mg/kg
N-Nitrosodiphenylamine	ND	1.0		mg/kg
2,4,6-Trichlorophenol	ND	1.0		mg/kg
4-Bromophenyl-Phenyl Ether	ND	1.0		mg/kg
Hexachlorobenzene	ND	1.0		mg/kg
Pentachlorophenol	ND	5.0		mg/kg
Phenanthrene	ND	1.0		mg/kg
Anthracene	ND	1.0		mg/kg
Di-n-Butyl Phthalate	ND	1.0		mg/kg
Fluoranthene	ND	1.0		mg/kg
Benzidine	ND	5.0		mg/kg
Pyrene	ND	1.0		mg/kg
Pyridine	ND	1.0		mg/kg
Butyl Benzyl Phthalate	ND	1.0		mg/kg
3,3'-Dichlorobenzidine	ND	1.0		mg/kg
Benzo (a) Anthracene	ND	1.0		mg/kg
Bis(2-Ethylhexyl) Phthalate	4.7	1.0		mg/kg
Chrysene	ND	1.0		mg/kg
Di-n-Octyl Phthalate	ND	1.0		mg/kg
Benzo (b) Fluoranthene	ND	1.0		mg/kg

ANALYTICAL REPORT
EPA 8270C Semi-Volatile Organics

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	9901065	Date Collected:	01/06/99
Matrix:	Solid	Date Received:	01/06/99
Preparation:	EPA 3540B	Date Prepared:	01/06/99
Method:	EPA 8270C	Date Analyzed:	01/07/99

Client Sample Number: P-11 SUMP
Lab Sample Number: 99-01-0064-18

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Benzo (k) Fluoranthene	ND	1.0		mg/kg
Benzo (a) Pyrene	ND	1.0		mg/kg
Indeno (1,2,3-c,d) Pyrene	ND	1.0		mg/kg
Dibenz (a,h) Anthracene	ND	1.0		mg/kg
Benzo (g,h,i) Perylene	ND	1.0		mg/kg

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
2-Fluorophenol	97	25-121	
Phenol-d6	93	24-113	
Nitrobenzene-d5	93	23-120	
2-Fluorobiphenyl	99	30-115	
2,4,6-Tribromophenol	101	19-122	
p-Terphenyl-d14	91	18-137	

ANALYTICAL REPORT
EPA 8270C Semi-Volatile Organics

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	9901065	Date Collected:	N/A
Matrix:	Solid	Date Received:	N/A
Preparation:	EPA 3540B	Date Prepared:	01/06/99
Method:	EPA 8270C	Date Analyzed:	01/07/99

Client Sample Number: Method Blank
Lab Sample Number: 095-01-002-380

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
N-Nitrosodimethylamine	ND	1.0		mg/kg
Aniline	ND	1.0		mg/kg
Phenol	ND	1.0		mg/kg
Bis(2-Chloroethyl) Ether	ND	5.0		mg/kg
2-Chlorophenol	ND	1.0		mg/kg
1,3-Dichlorobenzene	ND	1.0		mg/kg
1,4-Dichlorobenzene	ND	1.0		mg/kg
Benzyl Alcohol	ND	1.0		mg/kg
1,2-Dichlorobenzene	ND	1.0		mg/kg
2-Methylphenol	ND	1.0		mg/kg
Bis(2-Chloroisopropyl) Ether	ND	1.0		mg/kg
4-Methylphenol	ND	1.0		mg/kg
N-Nitroso-di-n-propylamine	ND	1.0		mg/kg
Hexachloroethane	ND	1.0		mg/kg
Nitrobenzene	ND	5.0		mg/kg
Isophorone	ND	1.0		mg/kg
2-Nitrophenol	ND	1.0		mg/kg
2,4-Dimethylphenol	ND	1.0		mg/kg
Benzoic Acid	ND	5.0		mg/kg
Bis(2-Chloroethoxy) Methane	ND	1.0		mg/kg
2,4-Dichlorophenol	ND	1.0		mg/kg
1,2,4-Trichlorobenzene	ND	1.0		mg/kg
Naphthalene	ND	1.0		mg/kg
4-Chloroaniline	ND	1.0		mg/kg
Hexachloro-1,3-Butadiene	ND	1.0		mg/kg
4-Chloro-3-Methylphenol	ND	1.0		mg/kg
2-Methylnaphthalene	ND	1.0		mg/kg
1-Methylnaphthalene	ND	1.0		mg/kg
Hexachlorocyclopentadiene	ND	1.0		mg/kg
2,4,5-Trichlorophenol	ND	1.0		mg/kg
2-Chloronaphthalene	ND	1.0		mg/kg
2-Nitroaniline	ND	1.0		mg/kg
Dimethyl Phthalate	ND	1.0		mg/kg

ANALYTICAL REPORT
EPA 8270C Semi-Volatile Organics

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	9901065	Date Collected:	N/A
Matrix:	Solid	Date Received:	N/A
Preparation:	EPA 3540B	Date Prepared:	01/06/99
Method:	EPA 8270C	Date Analyzed:	01/07/99

Client Sample Number: **Method Blank**
Lab Sample Number: 095-01-002-380

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Acenaphthylene	ND	1.0		mg/kg
3-Nitroaniline	ND	1.0		mg/kg
Acenaphthene	ND	1.0		mg/kg
2,4-Dinitrophenol	ND	5.0		mg/kg
4-Nitrophenol	ND	1.0		mg/kg
Dibenzofuran	ND	1.0		mg/kg
2,4-Dinitrotoluene	ND	1.0		mg/kg
2,6-Dinitrotoluene	ND	1.0		mg/kg
Diethyl Phthalate	ND	1.0		mg/kg
4-Chlorophenyl-Phenyl Ether	ND	1.0		mg/kg
Fluorene	ND	1.0		mg/kg
4-Nitroaniline	ND	1.0		mg/kg
Azobenzene	ND	1.0		mg/kg
4,6-Dinitro-2-Methylphenol	ND	5.0		mg/kg
N-Nitrosodiphenylamine	ND	1.0		mg/kg
2,4,6-Trichlorophenol	ND	1.0		mg/kg
4-Bromophenyl-Phenyl Ether	ND	1.0		mg/kg
Hexachlorobenzene	ND	1.0		mg/kg
Pentachlorophenol	ND	5.0		mg/kg
Phenanthrene	ND	1.0		mg/kg
Anthracene	ND	1.0		mg/kg
Di-n-Butyl Phthalate	ND	1.0		mg/kg
Fluoranthene	ND	1.0		mg/kg
Benzidine	ND	5.0		mg/kg
Pyrene	ND	1.0		mg/kg
Pyridine	ND	1.0		mg/kg
Butyl Benzyl Phthalate	ND	1.0		mg/kg
3,3'-Dichlorobenzidine	ND	1.0		mg/kg
Benzo (a) Anthracene	ND	1.0		mg/kg
Bis(2-Ethylhexyl) Phthalate	ND	1.0		mg/kg
Chrysene	ND	1.0		mg/kg
Di-n-Octyl Phthalate	ND	1.0		mg/kg
Benzo (b) Fluoranthene	ND	1.0		mg/kg



ANALYTICAL REPORT
EPA 8270C Semi-Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 9901065 Date Collected: N/A
Matrix: Solid Date Received: N/A
Preparation: EPA 3540B Date Prepared: 01/06/99
Method: EPA 8270C Date Analyzed: 01/07/99

Client Sample Number: Method Blank
Lab Sample Number: 095-01-002-380

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Benzo (k) Fluoranthene	ND	1.0		mg/kg
Benzo (a) Pyrene	ND	1.0		mg/kg
Indeno (1,2,3-c,d) Pyrene	ND	1.0		mg/kg
Dibenz (a,h) Anthracene	ND	1.0		mg/kg
Benzo (g,h,i) Perylene	ND	1.0		mg/kg

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
2-Fluorophenol	99	25-121	
Phenol-d6	103	24-113	
Nitrobenzene-d5	100	23-120	
2-Fluorobiphenyl	99	30-115	
2,4,6-Tribromophenol	93	19-122	
p-Terphenyl-d14	86	18-137	



ANALYTICAL REPORT
EPA 8270C Semi-Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 9901063 Date Collected: 01/06/99
Matrix: Aqueous Date Received: 01/06/99
Preparation: EPA 3520B Date Prepared: 01/06/99
Method: EPA 8270C Date Analyzed: 01/07/99

Client Sample Number: P-11
Lab Sample Number: 99-01-0064-4

Parameter	Result	RL	Qualifiers	Units
N-Nitrosodimethylamine	ND	14.5		ug/L
Aniline	ND	14.5		ug/L
Phenol	ND	14.5		ug/L
Bis(2-Chloroethyl) Ether	ND	36.2		ug/L
2-Chlorophenol	ND	14.5		ug/L
1,3-Dichlorobenzene	ND	14.5		ug/L
1,4-Dichlorobenzene	ND	14.5		ug/L
Benzyl Alcohol	ND	14.5		ug/L
1,2-Dichlorobenzene	ND	14.5		ug/L
2-Methylphenol	ND	14.5		ug/L
Bis(2-Chloroisopropyl) Ether	ND	14.5		ug/L
4-Methylphenol	ND	14.5		ug/L
N-Nitroso-di-n-propylamine	ND	14.5		ug/L
Hexachloroethane	ND	14.5		ug/L
Nitrobenzene	ND	36.2		ug/L
Isophorone	ND	14.5		ug/L
2-Nitrophenol	ND	14.5		ug/L
2,4-Dimethylphenol	ND	14.5		ug/L
Benzoic Acid	ND	72		ug/L
Bis(2-Chloroethoxy) Methane	ND	14.5		ug/L
2,4-Dichlorophenol	ND	14.5		ug/L
1,2,4-Trichlorobenzene	ND	14.5		ug/L
Naphthalene	ND	14.5		ug/L
4-Chloroaniline	ND	14.5		ug/L
Hexachloro-1,3-Butadiene	ND	14.5		ug/L
4-Chloro-3-Methylphenol	ND	14.5		ug/L
2-Methylnaphthalene	ND	14.5		ug/L
Hexachlorocyclopentadiene	ND	36.2		ug/L
2,4,6-Trichlorophenol	ND	14.5		ug/L
2,4,5-Trichlorophenol	ND	14.5		ug/L
2-Chloronaphthalene	ND	14.5		ug/L
2-Nitroaniline	ND	14.5		ug/L
Dimethyl Phthalate	ND	14.5		ug/L

ANALYTICAL REPORT
EPA 8270C Semi-Volatile Organics

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	9901063	Date Collected:	01/06/99
Matrix:	Aqueous	Date Received:	01/06/99
Preparation:	EPA 3520B	Date Prepared:	01/06/99
Method:	EPA 8270C	Date Analyzed:	01/07/99

Client Sample Number: P-11
Lab Sample Number: 99-01-0064-4

Parameter	Result	RL	Qualifiers	Units
Acenaphthylene	ND	14.5		ug/L
3-Nitroaniline	ND	14.5		ug/L
Acenaphthene	ND	14.5		ug/L
2,4-Dinitrophenol	ND	72		ug/L
4-Nitrophenol	ND	14.5		ug/L
Dibenzofuran	ND	14.5		ug/L
2,4-Dinitrotoluene	ND	14.5		ug/L
2,6-Dinitrotoluene	ND	14.5		ug/L
Diethyl Phthalate	ND	14.5		ug/L
4-Chlorophenyl-Phenyl Ether	ND	14.5		ug/L
Fluorene	ND	14.5		ug/L
4-Nitroaniline	ND	14.5		ug/L
Azobenzene	ND	14.5		ug/L
4,6-Dinitro-2-Methylphenol	ND	72.5		ug/L
N-Nitrosodiphenylamine	ND	14.5		ug/L
4-Bromophenyl-Phenyl Ether	ND	14.5		ug/L
Hexachlorobenzene	ND	14.5		ug/L
Pentachlorophenol	ND	14.5		ug/L
Phenanthrene	ND	14.5		ug/L
Anthracene	ND	14.5		ug/L
Di-n-Butyl Phthalate	ND	14.5		ug/L
Fluoranthene	ND	14.5		ug/L
Benzidine	ND	72.5		ug/L
Pyrene	ND	14.5		ug/L
Pyridine	ND	14.5		ug/L
Butyl Benzyl Phthalate	ND	14.5		ug/L
3,3'-Dichlorobenzidine	ND	36.2		ug/L
Benzo (a) Anthracene	ND	14.5		ug/L
Bis(2-Ethylhexyl) Phthalate	ND	14.5		ug/L
Chrysene	ND	14.5		ug/L
Di-n-Octyl Phthalate	ND	14.5		ug/L
Benzo (b) Fluoranthene	ND	14.5		ug/L
Benzo (k) Fluoranthene	ND	14.5		ug/L



ANALYTICAL REPORT
EPA 8270C Semi-Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 9901063 Date Collected: 01/06/99
Matrix: Aqueous Date Received: 01/06/99
Preparation: EPA 3520B Date Prepared: 01/06/99
Method: EPA 8270C Date Analyzed: 01/07/99

Client Sample Number: P-11
Lab Sample Number: 99-01-0064-4

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Benzo (a) Pyrene	ND	14.5		ug/L
Benzo (g,h,i) Perylene	ND	14.5		ug/L
Indeno (1,2,3-c,d) Pyrene	ND	14.5		ug/L
Dibenz (a,h) Anthracene	ND	14.5		ug/L
1-Methylnaphthalene	ND	14.5		ug/L

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
2-Fluorophenol	53	21-100	
Phenol-d6	38	10-94	
Nitrobenzene-d5	66	35-114	
2-Fluorobiphenyl	65	43-116	
2,4,6-Tribromophenol	68	10-123	
p-Terphenyl-d14	54	33-141	



ANALYTICAL REPORT
EPA 8270C Semi-Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 9901063 Date Collected: 01/06/99
Matrix: Aqueous Date Received: 01/06/99
Preparation: EPA 3520B Date Prepared: 01/06/99
Method: EPA 8270C Date Analyzed: 01/07/99

Client Sample Number: P-111
Lab Sample Number: 99-01-0064-8

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
N-Nitrosodimethylamine	ND	12.5		ug/L
Aniline	ND	12.5		ug/L
Phenol	ND	12.5		ug/L
Bis(2-Chloroethyl) Ether	ND	31.2		ug/L
2-Chlorophenol	ND	12.5		ug/L
1,3-Dichlorobenzene	ND	12.5		ug/L
1,4-Dichlorobenzene	ND	12.5		ug/L
Benzyl Alcohol	ND	12.5		ug/L
1,2-Dichlorobenzene	ND	12.5		ug/L
2-Methylphenol	ND	12.5		ug/L
Bis(2-Chloroisopropyl) Ether	ND	12.5		ug/L
4-Methylphenol	ND	12.5		ug/L
N-Nitroso-di-n-propylamine	ND	12.5		ug/L
Hexachloroethane	ND	12.5		ug/L
Nitrobenzene	ND	31.2		ug/L
Isophorone	ND	12.5		ug/L
2-Nitrophenol	ND	12.5		ug/L
2,4-Dimethylphenol	ND	12.5		ug/L
Benzoic Acid	ND	62		ug/L
Bis(2-Chloroethoxy) Methane	ND	12.5		ug/L
2,4-Dichlorophenol	ND	12.5		ug/L
1,2,4-Trichlorobenzene	ND	12.5		ug/L
Naphthalene	ND	12.5		ug/L
4-Chloroaniline	ND	12.5		ug/L
Hexachloro-1,3-Butadiene	ND	12.5		ug/L
4-Chloro-3-Methylphenol	ND	12.5		ug/L
2-Methylnaphthalene	ND	12.5		ug/L
Hexachlorocyclopentadiene	ND	31.2		ug/L
2,4,6-Trichlorophenol	ND	12.5		ug/L
2,4,5-Trichlorophenol	ND	12.5		ug/L
2-Chloronaphthalene	ND	12.5		ug/L
2-Nitroaniline	ND	12.5		ug/L
Dimethyl Phthalate	ND	12.5		ug/L



ANALYTICAL REPORT
EPA 8270C Semi-Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 9901063 Date Collected: 01/06/99
Matrix: Aqueous Date Received: 01/06/99
Preparation: EPA 3520B Date Prepared: 01/06/99
Method: EPA 8270C Date Analyzed: 01/07/99

Client Sample Number: P-111
Lab Sample Number: 99-01-0064-8

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Acenaphthylene	ND	12.5		ug/L
3-Nitroaniline	ND	12.5		ug/L
Acenaphthene	ND	12.5		ug/L
2,4-Dinitrophenol	ND	62		ug/L
4-Nitrophenol	ND	12.5		ug/L
Dibenzofuran	ND	12.5		ug/L
2,4-Dinitrotoluene	ND	12.5		ug/L
2,6-Dinitrotoluene	ND	12.5		ug/L
Diethyl Phthalate	ND	12.5		ug/L
4-Chlorophenyl-Phenyl Ether	ND	12.5		ug/L
Fluorene	ND	12.5		ug/L
4-Nitroaniline	ND	12.5		ug/L
Azobenzene	ND	12.5		ug/L
4,6-Dinitro-2-Methylphenol	ND	62.5		ug/L
N-Nitrosodiphenylamine	ND	12.5		ug/L
4-Bromophenyl-Phenyl Ether	ND	12.5		ug/L
Hexachlorobenzene	ND	12.5		ug/L
Pentachlorophenol	ND	12.5		ug/L
Phenanthrene	ND	12.5		ug/L
Anthracene	ND	12.5		ug/L
Di-n-Butyl Phthalate	ND	12.5		ug/L
Fluoranthene	ND	12.5		ug/L
Benzidine	ND	62.5		ug/L
Pyrene	ND	12.5		ug/L
Pyridine	ND	12.5		ug/L
Butyl Benzyl Phthalate	ND	12.5		ug/L
3,3'-Dichlorobenzidine	ND	31.2		ug/L
Benzo (a) Anthracene	ND	12.5		ug/L
Bis(2-Ethylhexyl) Phthalate	ND	12.5		ug/L
Chrysene	ND	12.5		ug/L
Di-n-Octyl Phthalate	ND	12.5		ug/L
Benzo (b) Fluoranthene	ND	12.5		ug/L
Benzo (k) Fluoranthene	ND	12.5		ug/L



ANALYTICAL REPORT
EPA 8270C Semi-Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 9901063 Date Collected: 01/06/99
Matrix: Aqueous Date Received: 01/06/99
Preparation: EPA 3520B Date Prepared: 01/06/99
Method: EPA 8270C Date Analyzed: 01/07/99

Client Sample Number: P-111
Lab Sample Number: 99-01-0064-8

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Benzo (a) Pyrene	ND	12.5		ug/L
Benzo (g,h,i) Perylene	ND	12.5		ug/L
Indeno (1,2,3-c,d) Pyrene	ND	12.5		ug/L
Dibenz (a,h) Anthracene	ND	12.5		ug/L
1-Methylnaphthalene	ND	12.5		ug/L

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
2-Fluorophenol	45	21-100	
Phenol-d6	32	10-94	
Nitrobenzene-d5	53	35-114	
2-Fluorobiphenyl	53	43-116	
2,4,6-Tribromophenol	56	10-123	
p-Terphenyl-d14	46	33-141	

ANALYTICAL REPORT
EPA 8270C Semi-Volatile Organics

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	9901063	Date Collected:	01/06/99
Matrix:	Aqueous	Date Received:	01/06/99
Preparation:	EPA 3520B	Date Prepared:	01/06/99
Method:	EPA 8270C	Date Analyzed:	01/08/99

Client Sample Number: W-A
Lab Sample Number: 99-01-0064-12

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
N-Nitrosodimethylamine	ND	12		ug/L
Aniline	ND	12		ug/L
Phenol	ND	12		ug/L
Bis(2-Chloroethyl) Ether	ND	30		ug/L
2-Chlorophenol	ND	12		ug/L
1,3-Dichlorobenzene	ND	12		ug/L
1,4-Dichlorobenzene	ND	12		ug/L
Benzyl Alcohol	ND	12		ug/L
1,2-Dichlorobenzene	ND	12		ug/L
2-Methylphenol	ND	12		ug/L
Bis(2-Chloroisopropyl) Ether	ND	12		ug/L
4-Methylphenol	ND	12		ug/L
N-Nitroso-di-n-propylamine	ND	12		ug/L
Hexachloroethane	ND	12		ug/L
Nitrobenzene	ND	30		ug/L
Isophorone	ND	12		ug/L
2-Nitrophenol	ND	12		ug/L
2,4-Dimethylphenol	ND	12		ug/L
Benzoic Acid	ND	60		ug/L
Bis(2-Chloroethoxy) Methane	ND	12		ug/L
2,4-Dichlorophenol	ND	12		ug/L
1,2,4-Trichlorobenzene	ND	12		ug/L
Naphthalene	ND	12		ug/L
4-Chloroaniline	ND	12		ug/L
Hexachloro-1,3-Butadiene	ND	12		ug/L
4-Chloro-3-Methylphenol	ND	12		ug/L
2-Methylnaphthalene	ND	12		ug/L
Hexachlorocyclopentadiene	ND	30		ug/L
2,4,6-Trichlorophenol	ND	12		ug/L
2,4,5-Trichlorophenol	ND	12		ug/L
2-Chloronaphthalene	ND	12		ug/L
2-Nitroaniline	ND	12		ug/L
Dimethyl Phthalate	ND	12		ug/L

ANALYTICAL REPORT
EPA 8270C Semi-Volatile Organics

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	9901063	Date Collected:	01/06/99
Matrix:	Aqueous	Date Received:	01/06/99
Preparation:	EPA 3520B	Date Prepared:	01/06/99
Method:	EPA 8270C	Date Analyzed:	01/08/99

Client Sample Number: W-A
Lab Sample Number: 99-01-0064-12

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Acenaphthylene	ND	12		ug/L
3-Nitroaniline	ND	12		ug/L
Acenaphthene	ND	12		ug/L
2,4-Dinitrophenol	ND	60		ug/L
4-Nitrophenol	ND	12		ug/L
Dibenzofuran	ND	12		ug/L
2,4-Dinitrotoluene	ND	12		ug/L
2,6-Dinitrotoluene	ND	12		ug/L
Diethyl Phthalate	ND	12		ug/L
4-Chlorophenyl-Phenyl Ether	ND	12		ug/L
Fluorene	ND	12		ug/L
4-Nitroaniline	ND	12		ug/L
Azobenzene	ND	12		ug/L
4,6-Dinitro-2-Methylphenol	ND	60		ug/L
N-Nitrosodiphenylamine	ND	12		ug/L
4-Bromophenyl-Phenyl Ether	ND	12		ug/L
Hexachlorobenzene	ND	12		ug/L
Pentachlorophenol	ND	12		ug/L
Phenanthrene	ND	12		ug/L
Anthracene	ND	12		ug/L
Di-n-Butyl Phthalate	ND	12		ug/L
Fluoranthene	ND	12		ug/L
Benzidine	ND	60		ug/L
Pyrene	ND	12		ug/L
Pyridine	ND	12		ug/L
Butyl Benzyl Phthalate	ND	12		ug/L
3,3'-Dichlorobenzidine	ND	30		ug/L
Benzo (a) Anthracene	ND	12		ug/L
Bis(2-Ethylhexyl) Phthalate	ND	12		ug/L
Chrysene	ND	12		ug/L
Di-n-Octyl Phthalate	ND	12		ug/L
Benzo (b) Fluoranthene	ND	12		ug/L
Benzo (k) Fluoranthene	ND	12		ug/L



ANALYTICAL REPORT
EPA 8270C Semi-Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 9901063 Date Collected: 01/06/99
Matrix: Aqueous Date Received: 01/06/99
Preparation: EPA 3520B Date Prepared: 01/06/99
Method: EPA 8270C Date Analyzed: 01/08/99

Client Sample Number: W-A
Lab Sample Number: 99-01-0064-12

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Benzo (a) Pyrene	ND	12		ug/L
Benzo (g,h,i) Perylene	ND	12		ug/L
Indeno (1,2,3-c,d) Pyrene	ND	12		ug/L
Dibenz (a,h) Anthracene	ND	12		ug/L
1-Methylnaphthalene	ND	12		ug/L

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
2-Fluorophenol	65	21-100	
Phenol-d6	67	10-94	
Nitrobenzene-d5	81	35-114	
2-Fluorobiphenyl	93	43-116	
2,4,6-Tribromophenol	71	10-123	
p-Terphenyl-d14	78	33-141	



ANALYTICAL REPORT
EPA 8270C Semi-Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 9901063 Date Collected: 01/06/99
Matrix: Aqueous Date Received: 01/06/99
Preparation: EPA 3520B Date Prepared: 01/06/99
Method: EPA 8270C Date Analyzed: 01/07/99

Client Sample Number: P-11 SUMP
Lab Sample Number: 99-01-0064-15

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
N-Nitrosodimethylamine	ND	13.5		ug/L
Aniline	ND	13.5		ug/L
Phenol	ND	13.5		ug/L
Bis(2-Chloroethyl) Ether	ND	33.8		ug/L
2-Chlorophenol	ND	13.5		ug/L
1,3-Dichlorobenzene	ND	13.5		ug/L
1,4-Dichlorobenzene	ND	13.5		ug/L
Benzyl Alcohol	ND	13.5		ug/L
1,2-Dichlorobenzene	ND	13.5		ug/L
2-Methylphenol	ND	13.5		ug/L
Bis(2-Chloroisopropyl) Ether	ND	13.5		ug/L
4-Methylphenol	ND	13.5		ug/L
N-Nitroso-di-n-propylamine	ND	13.5		ug/L
Hexachloroethane	ND	13.5		ug/L
Nitrobenzene	ND	33.8		ug/L
Isophorone	ND	13.5		ug/L
2-Nitrophenol	ND	13.5		ug/L
2,4-Dimethylphenol	ND	13.5		ug/L
Benzoic Acid	ND	68		ug/L
Bis(2-Chloroethoxy) Methane	ND	13.5		ug/L
2,4-Dichlorophenol	ND	13.5		ug/L
1,2,4-Trichlorobenzene	ND	13.5		ug/L
Naphthalene	ND	13.5		ug/L
4-Chloroaniline	ND	13.5		ug/L
Hexachloro-1,3-Butadiene	ND	13.5		ug/L
4-Chloro-3-Methylphenol	ND	13.5		ug/L
2-Methylnaphthalene	ND	13.5		ug/L
Hexachlorocyclopentadiene	ND	33.8		ug/L
2,4,6-Trichlorophenol	ND	13.5		ug/L
2,4,5-Trichlorophenol	ND	13.5		ug/L
2-Chloronaphthalene	ND	13.5		ug/L
2-Nitroaniline	ND	13.5		ug/L
Dimethyl Phthalate	ND	13.5		ug/L



ANALYTICAL REPORT
EPA 8270C Semi-Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 9901063 Date Collected: 01/06/99
Matrix: Aqueous Date Received: 01/06/99
Preparation: EPA 3520B Date Prepared: 01/06/99
Method: EPA 8270C Date Analyzed: 01/07/99

Client Sample Number: P-11 SUMP
Lab Sample Number: 99-01-0064-15

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Acenaphthylene	ND	13.5		ug/L
3-Nitroaniline	ND	13.5		ug/L
Acenaphthene	ND	13.5		ug/L
2,4-Dinitrophenol	ND	68		ug/L
4-Nitrophenol	ND	13.5		ug/L
Dibenzofuran	ND	13.5		ug/L
2,4-Dinitrotoluene	ND	13.5		ug/L
2,6-Dinitrotoluene	ND	13.5		ug/L
Diethyl Phthalate	ND	13.5		ug/L
4-Chlorophenyl-Phenyl Ether	ND	13.5		ug/L
Fluorene	ND	13.5		ug/L
4-Nitroaniline	ND	13.5		ug/L
Azobenzene	ND	13.5		ug/L
4,6-Dinitro-2-Methylphenol	ND	67.5		ug/L
N-Nitrosodiphenylamine	ND	13.5		ug/L
4-Bromophenyl-Phenyl Ether	ND	13.5		ug/L
Hexachlorobenzene	ND	13.5		ug/L
Pentachlorophenol	ND	13.5		ug/L
Phenanthrene	ND	13.5		ug/L
Anthracene	ND	13.5		ug/L
Di-n-Butyl Phthalate	ND	13.5		ug/L
Fluoranthene	ND	13.5		ug/L
Benzidine	ND	67.5		ug/L
Pyrene	ND	13.5		ug/L
Pyridine	ND	13.5		ug/L
Butyl Benzyl Phthalate	ND	13.5		ug/L
3,3'-Dichlorobenzidine	ND	33.8		ug/L
Benzo (a) Anthracene	ND	13.5		ug/L
Bis(2-Ethylhexyl) Phthalate	ND	13.5		ug/L
Chrysene	ND	13.5		ug/L
Di-n-Octyl Phthalate	ND	13.5		ug/L
Benzo (b) Fluoranthene	ND	13.5		ug/L
Benzo (k) Fluoranthene	ND	13.5		ug/L



ANALYTICAL REPORT
EPA 8270C Semi-Volatile Organics

Client Name:	Woodward-Clyde Consultants		
Project ID:	POLB-Naval Shipyard		
Work Order Number:	99-01-0064		
QC Batch ID:	9901063	Date Collected:	01/06/99
Matrix:	Aqueous	Date Received:	01/06/99
Preparation:	EPA 3520B	Date Prepared:	01/06/99
Method:	EPA 8270C	Date Analyzed:	01/07/99

Client Sample Number: P-11 SUMP
Lab Sample Number: 99-01-0064-15

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Benzo (a) Pyrene	ND	13.5		ug/L
Benzo (g,h,i) Perylene	ND	13.5		ug/L
Indeno (1,2,3-c,d) Pyrene	ND	13.5		ug/L
Dibenz (a,h) Anthracene	ND	13.5		ug/L
1-Methylnaphthalene	ND	13.5		ug/L

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
2-Fluorophenol	27	21-100	
Phenol-d6	50	10-94	
Nitrobenzene-d5	65	35-114	
2-Fluorobiphenyl	78	43-116	
2,4,6-Tribromophenol	25	10-123	
p-Terphenyl-d14	65	33-141	



ANALYTICAL REPORT
EPA 8270C Semi-Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 9901063 Date Collected: N/A
Matrix: Aqueous Date Received: N/A
Preparation: EPA 3520B Date Prepared: 01/06/99
Method: EPA 8270C Date Analyzed: 01/07/99

Client Sample Number: Method Blank
Lab Sample Number: 095-01-003-360

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
N-Nitrosodimethylamine	ND	10		ug/L
Aniline	ND	10		ug/L
Phenol	ND	10		ug/L
Bis(2-Chloroethyl) Ether	ND	25		ug/L
2-Chlorophenol	ND	10		ug/L
1,3-Dichlorobenzene	ND	10		ug/L
1,4-Dichlorobenzene	ND	10		ug/L
Benzyl Alcohol	ND	10		ug/L
1,2-Dichlorobenzene	ND	10		ug/L
2-Methylphenol	ND	10		ug/L
Bis(2-Chloroisopropyl) Ether	ND	10		ug/L
4-Methylphenol	ND	10		ug/L
N-Nitroso-di-n-propylamine	ND	10		ug/L
Hexachloroethane	ND	10		ug/L
Nitrobenzene	ND	25		ug/L
Isophorone	ND	10		ug/L
2-Nitrophenol	ND	10		ug/L
2,4-Dimethylphenol	ND	10		ug/L
Benzoic Acid	ND	50		ug/L
Bis(2-Chloroethoxy) Methane	ND	10		ug/L
2,4-Dichlorophenol	ND	10		ug/L
1,2,4-Trichlorobenzene	ND	10		ug/L
Naphthalene	ND	10		ug/L
4-Chloroaniline	ND	10		ug/L
Hexachloro-1,3-Butadiene	ND	10		ug/L
4-Chloro-3-Methylphenol	ND	10		ug/L
2-Methylnaphthalene	ND	10		ug/L
Hexachlorocyclopentadiene	ND	25		ug/L
2,4,6-Trichlorophenol	ND	10		ug/L
2,4,5-Trichlorophenol	ND	10		ug/L
2-Chloronaphthalene	ND	10		ug/L
2-Nitroaniline	ND	10		ug/L
Dimethyl Phthalate	ND	10		ug/L



ANALYTICAL REPORT
EPA 8270C Semi-Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 9901063 Date Collected: N/A
Matrix: Aqueous Date Received: N/A
Preparation: EPA 3520B Date Prepared: 01/06/99
Method: EPA 8270C Date Analyzed: 01/07/99

Client Sample Number: Method Blank
Lab Sample Number: 095-01-003-360

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Acenaphthylene	ND	10		ug/L
3-Nitroaniline	ND	10		ug/L
Acenaphthene	ND	10		ug/L
2,4-Dinitrophenol	ND	50		ug/L
4-Nitrophenol	ND	10		ug/L
Dibenzofuran	ND	10		ug/L
2,4-Dinitrotoluene	ND	10		ug/L
2,6-Dinitrotoluene	ND	10		ug/L
Diethyl Phthalate	ND	10		ug/L
4-Chlorophenyl-Phenyl Ether	ND	10		ug/L
Fluorene	ND	10		ug/L
4-Nitroaniline	ND	10		ug/L
Azobenzene	ND	10		ug/L
4,6-Dinitro-2-Methylphenol	ND	50		ug/L
N-Nitrosodiphenylamine	ND	10		ug/L
4-Bromophenyl-Phenyl Ether	ND	10		ug/L
Hexachlorobenzene	ND	10		ug/L
Pentachlorophenol	ND	10		ug/L
Phenanthrene	ND	10		ug/L
Anthracene	ND	10		ug/L
Di-n-Butyl Phthalate	ND	10		ug/L
Fluoranthene	ND	10		ug/L
Benzidine	ND	50		ug/L
Pyrene	ND	10		ug/L
Pyridine	ND	10		ug/L
Butyl Benzyl Phthalate	ND	10		ug/L
3,3'-Dichlorobenzidine	ND	25		ug/L
Benzo (a) Anthracene	ND	10		ug/L
Bis(2-Ethylhexyl) Phthalate	ND	10		ug/L
Chrysene	ND	10		ug/L
Di-n-Octyl Phthalate	ND	10		ug/L
Benzo (b) Fluoranthene	ND	10		ug/L
Benzo (k) Fluoranthene	ND	10		ug/L



ANALYTICAL REPORT
EPA 8270C Semi-Volatile Organics

Client Name: Woodward-Clyde Consultants
Project ID: POLB-Naval Shipyard
Work Order Number: 99-01-0064
QC Batch ID: 9901063 Date Collected: N/A
Matrix: Aqueous Date Received: N/A
Preparation: EPA 3520B Date Prepared: 01/06/99
Method: EPA 8270C Date Analyzed: 01/07/99

Client Sample Number: Method Blank
Lab Sample Number: 095-01-003-360

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Benzo (a) Pyrene	ND	10		ug/L
Benzo (g,h,i) Perylene	ND	10		ug/L
Indeno (1,2,3-c,d) Pyrene	ND	10		ug/L
Dibenz (a,h) Anthracene	ND	10		ug/L
1-Methylnaphthalene	ND	10		ug/L

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
2-Fluorophenol	22	21-100	
Phenol-d6	36	10-94	
Nitrobenzene-d5	87	35-114	
2-Fluorobiphenyl	86	43-116	
2,4,6-Tribromophenol	19	10-123	
p-Terphenyl-d14	75	33-141	



QUALITY ASSURANCE SUMMARY
ICP / GF Metals (Solids)

Woodward-Clyde Consultants
Page 1 of 1

Work Order No.: 99-01-0064
Date Analyzed: 01/07/98

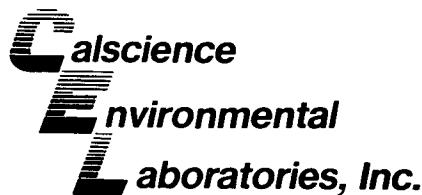
Matrix Spike/Matrix Spike Duplicate

Sample Spiked: P-11-3-5

<u>Analyte</u>	<u>Method</u>	<u>MS%REC</u>	<u>MSD%REC</u>	<u>Control Limits</u>	<u>%RPD</u>	<u>Control Limits</u>
Mercury	EPA 7471A	117	121	50 - 130	3	0 - 20

Laboratory Control Sample

<u>Analyte</u>	<u>Method</u>	<u>Conc. Added</u>	<u>Conc. Rec.</u>	<u>%REC</u>	<u>Control Limits</u>
Mercury	EPA 7471A	0.0050	0.0057	114	50 - 130



QUALITY ASSURANCE SUMMARY

ICP / GF Metals (Aqueous)

Woodward-Clyde Consultants
Page 1 of 1

Work Order No.: 99-01-0064
Date Analyzed: 01/07/99

Matrix Spike/Matrix Spike Duplicate

Sample Spiked: P-11

<u>Analyte</u>	<u>Method</u>	<u>MS%REC</u>	<u>MSD%REC</u>	<u>Control Limits</u>	<u>%RPD</u>	<u>Control Limits</u>
Mercury	EPA 7470A	107	105	50 - 130	2	0 - 20

Laboratory Control Sample

<u>Analyte</u>	<u>Method</u>	<u>Conc. Added</u>	<u>Conc. Rec.</u>	<u>%REC</u>	<u>Control Limits</u>
Mercury	EPA 7470A	0.0050	0.0054	108	50 - 130

QUALITY ASSURANCE SUMMARY

Method EPA 8015M - D (Solids)

Woodward-Clyde Consultants

Page 1 of 1

Work Order No.:

99-01-0064

Date Analyzed:

01/05/99

Matrix Spike/Matrix Spike Duplicate

Sample Spiked: 99-01-0035-12

<u>Analyte</u>	<u>MS%REC</u>	<u>MSD%REC</u>	<u>Control Limits</u>	<u>%RPD</u>	<u>Control Limits</u>
Total Petroleum Hydrocarbons	110	115	52 - 149	4	0 - 29

Laboratory Control Sample

<u>Analyte</u>	<u>Conc. Added</u>	<u>Conc. Rec.</u>	<u>%REC</u>	<u>Control Limits</u>
Total Petroleum Hydrocarbons	400	434	108	79 - 137

Surrogate Recoveries (in %)

<u>Sample Number</u>	<u>S1</u>
P-11-3-5	112
P-111-3-5	113
W-A-5-7	116
Method Blank	129

<u>Surrogate Compound</u>	<u>%REC</u>	<u>Acceptable Limits</u>
S1 > Decachlorobiphenyl	52 - 135	



QUALITY ASSURANCE SUMMARY

Method EPA 8015M - D (Aqueous)

Woodward-Clyde Consultants
Page 1 of 1

Work Order No.:
Date Analyzed:

99-01-0064
01/06/99

LCS/LCS Duplicate

<u>Analyte</u>	<u>LCS%REC</u>	<u>LCSD%REC</u>	<u>Control Limits</u>	<u>%RPD</u>	<u>Control Limits</u>
Total Petroleum Hydrocarbons	109	113	77 - 136	3	0 - 31

Surrogate Recoveries (in %)

<u>Sample Number</u>	
P-11	102
P-111	109
W-A	111
Method Blank	133

Surrogate Compound

S1 > Decachlorobiphenyl

%REC
Acceptable Limits

58 - 152



QUALITY ASSURANCE SUMMARY

Method EPA 8015M - G (Solids)

Woodward-Clyde Consultants

Page 1 of 1

Work Order No.:

99-01-0064

Date Analyzed:

01/07/99

Matrix Spike/Matrix Spike Duplicate

Sample Spiked: 99-01-0065-4

<u>Analyte</u>	<u>MS%REC</u>	<u>MSD%REC</u>	<u>Control Limits</u>	<u>%RPD</u>	<u>Control Limits</u>
Total Petroleum Hydrocarbons	84	75	52 - 149	11	0 - 29

Laboratory Control Sample

<u>Analyte</u>	<u>Conc. Added</u>	<u>Conc. Rec.</u>	<u>%REC</u>	<u>Control Limits</u>
Total Petroleum Hydrocarbons	2.00	1.77	89	79 - 137

Surrogate Recoveries (in %)

<u>Sample Number</u>	<u>S1</u>
P-11-3-5	87
P-111-3-5	86
W-A-5-7	99
Method Blank	96

<u>Surrogate Compound</u>	<u>%REC</u>	<u>Acceptable Limits</u>
S1 > 4-Bromofluorobenzene	45 - 141	



QUALITY ASSURANCE SUMMARY

Method EPA 8015M - G (Aqueous)

Woodward-Clyde Consultants
Page 1 of 1

Work Order No.: 99-01-0064
Date Analyzed: 01/08/99

Matrix Spike/Matrix Spike Duplicate

Sample Spiked: 99-01-0066-13

<u>Analyte</u>	<u>MS%REC</u>	<u>MSD%REC</u>	<u>Control Limits</u>	<u>%RPD</u>	<u>Control Limits</u>
Total Petroleum Hydrocarbons	94	97	69 - 136	3	0 - 27

Laboratory Control Sample

<u>Analyte</u>	<u>Conc. Added</u>	<u>Conc. Rec.</u>	<u>%REC</u>	<u>Control Limits</u>
Total Petroleum Hydrocarbons	2000	1970	98	77 - 136

Surrogate Recoveries (in %)

<u>Sample Number</u>	<u>S1</u>
P-11	91
P-111	91
W-A	92
Method Blank	88

Surrogate Compound

S1 > 4-Bromofluorobenzene %REC Acceptable Limits

56 - 136

Calscience**E**nvironmental
Laboratories, Inc.**Quality Control - Spike/Spike Duplicate**
EPA 6010B CAC, Title 22 MetalsMS/MSD Batch Number: 010799ms3
Matrix: Solid
Method: EPA 6010BInstrument: ICP 2000
Date Extracted: 01/07/99
Date Analyzed: 01/07/99**Spiked Sample ID:** P-11-3-5

<u>Parameter</u>	<u>MS %REC</u>	<u>MSD %REC</u>	<u>%REC CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Antimony	41	53	50-115	24	0-20	3
Arsenic	79	96	75-125	17	0-20	
Barium	60	102	75-125	18	0-20	3
Beryllium	81	96	75-125	17	0-20	
Cadmium	80	96	75-125	17	0-20	
Chromium (Total)	79	99	75-125	18	0-20	
Cobalt	80	98	75-125	18	0-20	
Copper	85	105	75-125	18	0-20	
Lead	82	98	75-125	18	0-20	
Molybdenum	77	93	75-125	18	0-20	
Nickel	79	100	75-125	19	0-20	
Selenium	74	87	75-125	16	0-20	3
Silver	83	98	75-125	17	0-20	
Thallium	80	97	75-125	18	0-20	
Vanadium	79	98	75-125	15	0-20	
Zinc	73	99	75-125	16	0-20	3



Quality Control - Spike/Spike Duplicate

EPA 6010B CAC, Title 22 Metals

MS/MSD Batch Number: 010799ms2
Matrix: Aqueous
Method: EPA 6010B

Instrument: ICP 2000
Date Extracted: 01/07/99
Date Analyzed: 01/07/99

Spiked Sample ID: 99-01-0075-1

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Antimony	108	105	80-120	3	0-20	
Arsenic	113	110	80-120	3	0-20	
Barium	117	112	80-120	3	0-20	
Beryllium	110	106	80-120	5	0-20	
Cadmium	110	106	80-120	5	0-20	
Chromium (Total)	110	106	80-120	4	0-20	
Cobalt	114	110	80-120	4	0-20	
Copper	115	109	80-120	4	0-20	
Lead	111	107	80-120	4	0-20	
Molybdenum	108	105	80-120	4	0-20	
Nickel	112	108	80-120	3	0-20	
Selenium	99	96	80-120	3	0-20	
Silver	110	106	80-120	4	0-20	
Thallium	112	108	80-120	4	0-20	
Vanadium	111	108	80-120	3	0-20	
Zinc	106	100	80-120	4	0-20	



Quality Control - LCS/LCS Duplicate
EPA 6010B CAC, Title 22 Metals

LCS/LCSD Batch Number: 990107lcs3
Matrix: Solid
Method: EPA 6010B

Instrument: ICP 2000
Date Extracted: 01/07/99
Date Analyzed: 01/07/99

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Antimony	94	94	80-120	0	0-20	
Arsenic	109	109	80-120	0	0-20	
Barium	113	112	80-120	0	0-20	
Beryllium	107	106	80-120	0	0-20	
Cadmium	109	108	80-120	0	0-20	
Chromium (Total)	108	107	80-120	0	0-20	
Cobalt	112	111	80-120	0	0-20	
Copper	108	107	80-120	0	0-20	
Lead	106	106	80-120	0	0-20	
Molybdenum	105	104	80-120	0	0-20	
Nickel	110	109	80-120	0	0-20	
Selenium	100	100	80-120	0	0-20	
Silver	107	106	80-120	0	0-20	
Thallium	107	107	80-120	0	0-20	
Vanadium	109	108	80-120	0	0-20	
Zinc	107	107	80-120	0	0-20	

Calscience

**E nvironmental Quality Control - Laboratory Control Sample
nvironmental Laboratories, Inc. EPA 6010B CAC, Title 22 Metals**

LCS Batch Number: 990107lcs2
Lab File ID: 990107LC
Matrix: Aqueous
Method: EPA 6010B

Instrument: ICP 2000
Date Analyzed: 01/07/99

LCS Sample Number: 097-01-003-681

<u>Parameter</u>	<u>Conc Added</u>	<u>Conc Recovered</u>	<u>%Rec</u>	<u>%Rec CL</u>	<u>Qualifiers</u>
Antimony	1.00	0.818	82	80-120	
Arsenic	1.00	1.03	103	80-120	
Barium	1.00	1.14	114	80-120	
Beryllium	1.00	1.04	104	80-120	
Cadmium	1.00	1.03	103	80-120	
Chromium (Total)	1.00	0.989	99	80-120	
Cobalt	1.00	1.06	106	80-120	
Copper	1.00	1.05	105	80-120	
Lead	1.00	1.01	101	80-120	
Molybdenum	1.00	0.985	98	80-120	
Nickel	1.00	1.03	103	80-120	
Selenium	1.00	0.954	95	80-120	
Silver	0.500	0.524	105	80-120	
Thallium	1.00	1.03	102	80-120	
Vanadium	1.00	1.04	104	80-120	
Zinc	1.00	1.02	102	80-120	



Quality Control - LCS/LCS Duplicate

EPA 8082 PCBs

LCS/LCSD Batch Number: 9901061

Instrument: GC 10

Matrix:

Solid

Date Extracted: 01/06/99

Method:

EPA 8082

Date Analyzed: 01/07/99

<u>Parameter</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>%REC CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Aroclor-1260	60	52	50-135	14	0-25	



Quality Control - LCS/LCS Duplicate
EPA 8082 PCBs

LCS/LCSD Batch Number: 9901064
Matrix: Aqueous
Method: EPA 8082

Instrument: GC 10
Date Extracted: 01/06/99
Date Analyzed: 01/07/99

<u>Parameter</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>%REC CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Aroclor-1260	65	64	50-135	1	0-25	



Quality Control - Spike/Spike Duplicate
EPA 8260B Volatile Organics

MS/MSD Batch Number: 99010068-2
Matrix: Solid
Method: EPA 8260B

Instrument: GC/MS C
Date Extracted: N/A
Date Analyzed: 01/07/99

Spiked Sample ID: 99-01-0068-2

<u>Parameter</u>	<u>MS %REC</u>	<u>MSD %REC</u>	<u>%REC CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Benzene	100	101	72-127	1	0-25	
Carbon Tetrachloride	108	106	70-130	2	0-25	
Chlorobenzene	100	101	72-131	1	0-25	
1,2-Dichlorobenzene	100	101	70-130	1	0-25	
1,1-Dichloroethene	102	102	69-127	0	0-25	
Toluene	100	94	75-124	6	0-25	
Trichloroethene	101	102	60-137	1	0-25	
Vinyl Chloride	102	101	70-130	1	0-25	
Methyl-tert-Butyl Ether	103	104	80-120	1	0-25	



Quality Control - Spike/Spike Duplicate
EPA 8260B Volatile Organics

MS/MSD Batch Number: 9010064-12
Matrix: Aqueous
Method: EPA 8260B

Instrument: GC/MS A
Date Extracted: N/A
Date Analyzed: 01/07/99

Spiked Sample ID: W-A

<u>Parameter</u>	<u>MS %REC</u>	<u>MSD %REC</u>	<u>%REC CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Benzene	98	100	72-127	2	0-25	
Carbon Tetrachloride	91	96	70-130	5	0-25	
Chlorobenzene	102	106	72-131	4	0-25	
1,2-Dichlorobenzene	101	104	70-130	3	0-25	
1,1-Dichloroethene	90	94	69-127	4	0-25	
Toluene	102	104	75-124	2	0-25	
Trichloroethene	100	102	60-137	2	0-25	
Vinyl Chloride	90	96	70-130	6	0-25	
Methyl-tert-Butyl Ether	99	104	80-120	5	0-25	

Calscience

Environmental Laboratories, Inc. Quality Control - Laboratory Control Sample
EPA 8260B Volatile Organics

LCS Batch Number: 990107AS
Lab File ID: 07JAN003
Matrix: Solid
Method: EPA 8260B Instrument: GC/MS C
Date Analyzed: 01/07/99

LCS Sample Number: 095-01-025-1,081

<u>Parameter</u>	<u>Conc Added</u>	<u>Conc Recovered</u>	<u>%Rec</u>	<u>%Rec CL</u>	<u>Qualifiers</u>
Benzene	250	251	100	72-127	
Carbon Tetrachloride	250	289	116	70-130	
Chlorobenzene	250	253	101	72-131	
1,2-Dichlorobenzene	250	252	101	70-130	
1,1-Dichloroethene	250	253	101	69-127	
Toluene	250	254	102	75-124	
Trichloroethene	250	255	102	60-137	
Vinyl Chloride	250	251	100	79-118	
Methyl-tert-Butyl Ether	250	248	99	80-120	

Calscience

Environmental Quality Control - Laboratory Control Sample
Laboratories, Inc. EPA 8260B Volatile Organics

LCS Batch Number: 990107AW
Lab File ID: 07JAN003
Matrix: Aqueous
Method: EPA 8260B

Instrument: GC/MS A
Date Analyzed: 01/07/99

LCS Sample Number: 095-01-026-964

Parameter	Conc Added	Conc Recovered	%Rec	%Rec CL	Qualifiers
Benzene	50	49.7	99	72-127	
Carbon Tetrachloride	50	47.3	95	70-130	
Chlorobenzene	50	51.9	104	72-131	
1,2-Dichlorobenzene	50	51.2	102	70-130	
1,1-Dichloroethene	50	46.6	93	69-127	
Toluene	50	51.5	103	75-124	
Trichloroethene	50	49.9	100	60-137	
Vinyl Chloride	50	47.0	94	79-118	
Methyl-tert-Butyl Ether	50	46.3	93	80-120	



Quality Control - Spike/Spike Duplicate
EPA 8270C Semi-Volatile Organics

MS/MSD Batch Number: 99010641
Matrix: Solid
Method: EPA 8270C

Instrument: GC/MS F
Date Extracted: 01/06/99
Date Analyzed: 01/07/99

Spiked Sample ID: P-11-3-5

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Phenol	92	84	20-120	9	0-42	
2-Chlorophenol	96	87	23-134	10	0-40	
1,4-Dichlorobenzene	100	90	20-124	11	0-28	
N-Nitroso-di-n-propylamine	98	94	0-230	4	0-38	
1,2,4-Trichlorobenzene	96	91	44-142	5	0-28	
Acenaphthene	104	101	47-145	3	0-31	
2,4-Dinitrotoluene	97	92	39-139	5	0-38	

Calscience

Environmental Quality Control - Laboratory Control Sample
abatories, Inc. EPA 8270C Semi-Volatile Organics

LCS Batch Number: 9901065
Lab File ID: 2101020
Matrix: Solid
Method: EPA 8270C

Instrument: GC/MS F
Date Analyzed: 01/07/99

LCS Sample Number: 095-01-002-380

<u>Parameter</u>	<u>Conc Added</u>	<u>Conc Recovered</u>	<u>%Rec</u>	<u>%Rec CL</u>	<u>Qualifiers</u>
Phenol	20	21.3	107	20-120	
2-Chlorophenol	20	19.2	96	23-134	
1,4-Dichlorobenzene	20	18.7	94	20-124	
N-Nitroso-di-n-propylamine	20	18.7	94	0-230	
1,2,4-Trichlorobenzene	20	18.0	90	44-142	
Acenaphthene	20	20.1	100	47-145	
2,4-Dinitrotoluene	20	14.1	71	39-139	



Quality Control - LCS/LCS Duplicate

EPA 8270C Semi-Volatile Organics

LCS/LCSD Batch Number: 9901063

Instrument: GC/MS F

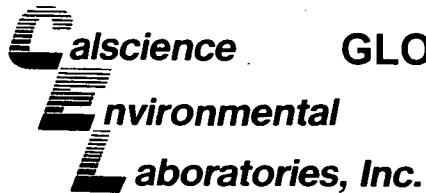
Matrix: Aqueous

Date Extracted: 01/06/99

Method: EPA 8270C

Date Analyzed: 01/07/99

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Phenol	50	51	20-120	1	0-42	
2-Chlorophenol	60	70	23-134	15	0-40	
1,4-Dichlorobenzene	98	99	20-124	1	0-28	
N-Nitroso-di-n-propylamine	100	98	0-230	2	0-38	
1,2,4-Trichlorobenzene	92	98	44-142	6	0-28	
Acenaphthene	106	103	47-145	2	0-31	
2,4-Dinitrotoluene	99	103	39-139	3	0-38	



GLOSSARY OF TERMS AND QUALIFIERS

Work Order Number: 99-01-0064

<u>Qualifier</u>	<u>Definition</u>
ND	Not detected at indicated reporting limit.

1-11-99

0064

Woodward-Clyde Consultants

SHIPMENT NO.: _____

CHAIN OF CUSTODY RECORD

PAGE 1 OF 2

PROJECT NAME: POLB - NAVAL SHIPYARD

DATE 1/16/99

PROJECT NO.: _____

ITEM #	Sample Number	Location	Type of Sample		Type of Container	Type of Preservation		Analysis Required*
			Material	Method		Temp	Chemical	
100 730	P-11-3-S	POLB	SOIL	DIRECT PUSH	1 1/8" X 6" SS. TUBE	ICE	NONE	(1), (2), (3), (4), (5), (6), (8)
900	P-11-5-7	POLB	SOIL	DIRECT PUSH	1 1/8" X 6" SS. TUBE	ICE	NONE	HOLD
	P-11-10-12	POLB	SOIL	DIRECT PUSH	1 1/8" X 6" SS. TUBE	ICE	NONE	HOLD
000	P-11	POLB	WATER	HYDROFLUID	(5) 40ML VIALS	ICE	HCL	(1), (3)
					(1) 1L AMBER	ICE	Na ₂ S ₂ O ₃	(2)
					(1) SOONL AMBER	ICE	HCL	(4)
					(1) SOONL AMBER	ICE	H ₂ SO ₄	(5)
					(1) 250ML AMBER	PLASTIC	HNO ₃	(8)
					(1) 1L AMBER	ICE	Na ₂ S ₂ O ₃	(6)
	P-111-3-S	POLB	SOIL	DIRECT PUSH	1 1/8" X 6" SS. TUBE	ICE	NONE	(1), (2), (3), (4), (5), (6), (8)
020	P-111-5-7	POLB	SOIL	DIRECT PUSH	1 1/8" X 6" SS. TUBE	ICE	NONE	HOLD
	P-111-10-12	POLB	SOIL	DIRECT PUSH	1 1/8" X 6" SS. TUBE	ICE	NONE	HOLD
	P-111	POLB	WATER	HYDROFLUID	(5) 40ML VIALS	ICE	HCL	(1), (3)
					(1) 1L AMBER	ICE	Na ₂ S ₂ O ₃	(2)
					(1) SOONL AMBER	ICE	HCL	(4)
					(1) SOONL AMBER	ICE	H ₂ SO ₄	(5)
					(1) 250ML AMBER	PLASTIC	HNO ₃	(8)
					(1) 1L AMBER	ICE	Na ₂ S ₂ O ₃	(6)

Total Number of Samples Shipped:

Sampler's Signature: Tony C. Aro

Relinquished By:

Signature _____

Printed Name Tony C. AroCompany WCCReason DELIVER TO LAB FOR ANALYSIS

Received By:

Signature _____

Printed Name _____

Company _____

Date / /

Time _____

Relinquished By:

Signature _____

Printed Name _____

Company _____

Reason _____

Received By:

Signature _____

Printed Name _____

Company _____

Date / /

Time _____

Relinquished By:

Signature _____

Printed Name _____

Company _____

Reason _____

Received By:

Signature _____

Printed Name _____

Company _____

Date / /

Time _____

Relinquished By:

Signature _____

Printed Name _____

Company _____

Reason _____

Received By:

Signature _____

Printed Name _____

Company _____

Date 01/06/99Time 1535

Special Shipment / Handling / Storage Requirements:

- (1) VOCs - EPA METHOD 8260
- (2) SVOCs - EPA METHOD 8270
- (3) TPH-9 - EPA METHOD 8015M

- (4) TPH-1 - EPA METHOD 8015M
- (5) OIL & GREASE - EPA METHOD 413.1
- (6) PCBs - EPA METHOD 8080
- (7) CYANIDE - EPA METHOD 9010
- (8) METALS - EPA METHOD 6000/7000

* Note - This does not constitute authorization to proceed with analysis

TAT = 48 HOURS (RESULTS NO LATER THAN 8:00 AM)
1-11-99

0064

Woodward-Clyde Consultants

CHAIN OF CUSTODY RECORD

PROJECT NAME: POLB - NAVAL SHIPYARD

PROJECT NO.:

SHIPMENT NO.:

PAGE 2 OF 2

DATE 1/6/99

Sample Number	Location	Type of Sample		Type of Container	Type of Preservation		Analysis Required *
		Material	Method		Temp	Chemical	
W-A-3-S	POLB	SOIL	DIRECT PUSH	1 1/2" X 6" SE TUBE	ICE	NONE	HOLD
W-A-3-7	POLB	SOIL	DIRECT PUSH	()	()	()	①, ②, ③, ④, ⑤, ⑦, ⑨
W-A-10-12	POLB	SOIL	DIRECT PUSH	()	()	()	HOLD
W-A	POLB	WATER	HYDROSTATIC	(4) 40 ML VOAS	ICE	HCL	①, ③
				(1) 1 L AMBER		Na ₂ S ₂ O ₃	②
				(1) 500ML AMBER		HCL	④
				(1) 500ML AMBER		H ₂ SO ₄	⑤
				(1) 250 ML PLASTIC		NaOH	⑦
				(1) 100 ML PLASTIC		NONE	⑩
				(1) 250 ML PLASTIC	()	HNO ₃	⑥
WB-1	POLB	SOLID	GRAB	NONE	ICE	NONE	HOLD
WB-2	POLB	SOLID	GRAB	NONE	ICE	NONE	HOLD
P-11 SUMP	POLB	WATER	GRAB	(1) 1 L AMBER	ICE	Na ₂ S ₂ O ₃	②
				(1) 250 ML PLASTIC	ICE	HNO ₃	⑧
				(1) 100 ML PLASTIC	ICE	NONE	⑩
EB-1	POLB	WATER	GRAB	(2) 40 ML VOAS	ICE	HCL	①
TB-0101	POLB	WATER	LAB	(2) 40 ML VOAS	ICE	HCL	①
P-11 SUMP	POLB	SLUDGE	GRAB	(1) WIDE MOUTH GLASS JAR	ICE	NONE	②, ⑧, ⑨

Total Number of Samples Shipped:

Sampler's Signature: *Tommy C. Aro*

Relinquished By: *Tommy C. Aro*
Signature _____
Printed Name Tommy C. Aro
Company WCC
Reason REMOVED TO LAB FOR ANALYSIS

Received By:
Signature _____
Printed Name _____
Company _____

Date / /
Time _____

Relinquished By:
Signature _____
Printed Name _____
Company _____
Reason _____

Received By:
Signature _____
Printed Name _____
Company _____

Date / /
Time _____

Relinquished By:
Signature _____
Printed Name _____
Company _____
Reason _____

Received By:
Signature _____
Printed Name _____
Company _____

Date / /
Time _____

Relinquished By:
Signature _____
Printed Name _____
Company _____
Reason _____

Received By: *John Baker*
Signature _____
Printed Name JOHN BAKER
Company CBL

Date / /
Time _____

Special Shipment / Handling / Storage Requirements:

- ① VOCs - EPA 8260
- ④ TPH-D - EPA 8015m
- ⑦ CYANIDE - EPA 9010
- ② SVOCs - EPA 8270
- ⑤ OIL & GREASE - EPA 413.1
- ⑧ METALS - EPA 6000/7000 SERIES
- ③ TPH-G - 8015m
- ⑥ PCBs - EPA 8080
- ⑨ pH (Soil) - EPA 9045

* Note - This does not constitute authorization to proceed with analysis

THAN 8:00 AM
1-11-99

Woodward-Clyde Consultants

SHIPMENT NO.: _____

PAGE 1 OF 2DATE 1/16/99PROJECT NAME: POLB - NAVAL SHIPYARD

PROJECT NO.: _____

Sample Number	Location	Type of Sample		Type of Container	Type of Preservation		Analysis Required*
		Material	Method		Temp	Chemical	
P-11-3-S	POLB	SOIL	DIRECT PUSH	1 1/8" X 6" S.S. TUBE	ICE	NONE	(1), (2), (3), (4), (5), (6), (8)
P-11-5-7	POLB	SOIL	DIRECT PUSH	1 1/8" X 6" S.S. TUBE	ICE	NONE	HOLD
P-11-10-12	POLB	SOIL	DIRECT PUSH	1 1/8" X 6" S.S. TUBE	ICE	NONE	HOLD
P-11	POLB	WATER	HYDRO-PUNCH (S) 40ML VIALS	ICE	HCL	(1), (3)	
			(1) 1L AMBER	ICE	Na ₂ S ₂ O ₃	(2)	
			(1) SOOT LAMBER	ICE	HCL	(4)	
			(1) SOOT AMBER	ICE	H ₂ SO ₄	(5)	
			(1) ZEOLITE AMBER	ICE	HNO ₃	(8)	
			(1) 1L AMBER	ICE	Na ₂ S ₂ O ₃	(6)	
P-111-3-S	POLB	SOIL	DIRECT PUSH	1 1/8" X 6" S.S. TUBE	ICE	NONE	(1), (2), (3), (4), (5), (6), (8)
P-111-5-7	POLB	SOIL	DIRECT PUSH	1 1/8" X 6" S.S. TUBE	ICE	NONE	HOLD
P-111-10-12	POLB	SOIL	DIRECT PUSH	1 1/8" X 6" S.S. TUBE	ICE	NONE	HOLD
P-111	POLB	WATER	HYDRO-PUNCH (S) 40ML VIALS	ICE	HCL	(1), (3)	
			(1) 1L AMBER	ICE	Na ₂ S ₂ O ₃	(2)	
			(1) SOOT LAMBER	ICE	HCL	(4)	
			(1) SOOT AMBER	ICE	H ₂ SO ₄	(5)	
			(1) ZEOLITE AMBER	ICE	HNO ₃	(8)	
			(1) 1L AMBER	ICE	Na ₂ S ₂ O ₃	(6)	

Total Number of Samples Shipped:

Sampler's Signature: Tommy C. ALO

Relinquished By: Tommy C. ALO
Signature _____
Printed Name Tommy C. ALO
Company WCC
Reason DELIVER TO LAIS FOR ANALYSIS

Received By:
Signature _____
Printed Name _____
Company _____

Date 1/17
Time _____

Relinquished By:
Signature _____
Printed Name _____
Company _____
Reason _____

Received By:
Signature _____
Printed Name _____
Company _____

Date 1/17
Time _____

Relinquished By:
Signature _____
Printed Name _____
Company _____
Reason _____

Received By:
Signature _____
Printed Name _____
Company _____

Date 1/17
Time _____

Relinquished By:
Signature _____
Printed Name _____
Company _____
Reason _____

Received By: Tommy C. ALO
Signature _____
Printed Name SAY PAYIL
Company C-1

Date 01/16/1999
Time 1235

Special Shipment / Handling / Storage Requirements:

- (1) VOCs - EPA METHOD 8260
- (2) SVOCs - EPA METHOD 8270
- (3) TPH-9 - EPA METHOD 8015M
- (4) TPH-D - EPA METHOD 8015M
- (5) OIL & GREASE - EPA METHOD 413.1
- (6) PCBs - EPA METHOD 8080
- (7) CYANIDE - EPA METHOD 9010

* Note - This does not constitute authorization to proceed with analysis